The New England
Journal of Medicine

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VOLUME 228 MAY 13, 1943 NUMBER 19

PSYCHIATRY IN NEW HAMPSHIRE

The First Hundred Years*

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"ON THE 28th of October, 1842, the asylum was so far completed and furnished that one man and myself staid over night in the establishment; and the next day a very violent and noisy man was brought to us. From that time the patients have come in as fast as we have been prepared to receive them." Thus begins the first annual report of the New Hampshire Asylum for the Insane, written by Dr. George Chandler, its first superintendent, in 1843.

The opening of the asylum in 1842 ended a decade of preparation, planning and argument as to the need for such a place for the care of the insane of New Hampshire. Up to that time the insane were cared for in private homes or almshouses, and if the family could afford the expense they were sent to the McLean Asylum in Charlestown, Massachusetts. A movement was gradually started in the state for the purpose of building an asylum within the border of New Hampshire, and it gathered momentum and received much moral support from all periodicals published in the state at that time. Foremost in the movement were Governor Dinsmore, Dr. Luther V. Bell of Derry, who later became superintendent of the McLean Asylum, and a number of other public-spirited citizens. Numerous public meetings were held in various parts of the State during the decade preceding the opening of the asylum, in which the value of such an institution to the state was extolled in glowing terms. The pitiful conditions under which the insane existed in private homes or almshouses were also described in all their lurid details. The following descriptions are illustrative of the conditions in existence at that time; they are taken from the *New Hampshire Sentinel* for December 25, 1834.

An insane woman, who had wandered from her friends, was confined in one of our Jails, in winter and without fire. From the severity of the cold and her fixed condition her feet became so much diseased that it was considered necessary to amputate them at the ankle, which was accordingly done, and the woman afterwards restored to her friends in this mutilated condition.

Another female was confined in a garret; from the lowness of the roof and her consequently constrained position she grew double, and is now obliged to walk with her hands as well as her feet on the floor. A man was confined for a year in a cellar, nearly naked with a bed of wet straw. Another at this time was chained to the floor in an outbuilding, glad to pick the bones thrown into his kennel, like a beast — one with sufficient property — once in every respect as active and happy as the best of us.

To quote the same paper for December 17, 1835:

The example of Massachusetts has been followed by Maine so far that the legislature have appropriated $20,000 for an Insane Hospital provided that equal sum should be given by individuals. Vermont is moving in the same cause stimulated by a bequest of Mrs. Anna Marsh, for an asylum for the insane on the banks of the Connecticut River, in Windham County. In New Hampshire it has been ascertained by a committee of inquiry appointed by the legislature, that there are more than two hundred insane persons, more than half of whom are paupers in a deplorably suffering condition.

A board of twelve trustees was finally appointed in 1838, who were instructed to decide on the location of the asylum, plan the necessary buildings, and estimate the costs. There was much jockeying between the different cities in the state for the privilege of having the asylum within their boundaries.[1] Finally, on January 21, 1841, the trustees decided on the town of Concord for the location, in preference to Portsmouth, although the inducements offered by those who favored Portsmouth were twofold: first, "that it was the best fish market in the world, and that fish was the cheapest

*Written for the celebration of the one-hundredth anniversary of the New Hampshire State Hospital in October, 1942.

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and best food for insane persons" and, second, that it was "in the neighborhood of 'Genteel Society.' "[2] The actual reason for selecting Portsmouth as given by the opponents of locating the asylum there was that the superintendent of the Vermont Asylum for the Insane in Brattleboro, near the New Hampshire line, who was also on the committee, favored the Portsmouth location because it placed the hospital at the eastern end of the state and thus did not infringe on the territory covered by the other hospitals.[3]

Before the asylum building was completed, Dr. George Chandler was selected as superintendent because of his several years' experience at the Worcester Asylum in Massachusetts. Dr. Chandler's first report throws considerable light on psychiatric standards of that era. All New England institutions were still young — McLean at Charlestown, the oldest, was twenty-four years old, the Hartford Retreat was eighteen years old, just about reaching maturity, the Worcester Asylum ten, the Vermont Asylum six, and the Maine State Asylum, the youngest of the group only two years old — a mere nursling. The heads of these hospitals had little previous training in the treatment of insane patients, but they made up for this shortcoming by their enthusiasm and love for their work and by their realization that they had a job to do in a virgin field. The entire group objected to the therapeutic standbys of that era of puking, purging and bleeding. Nonrestraint was the byword, and in some cases was carried to extreme in allowing disturbed patients to harm themselves and others. There was free exchange of information regarding new methods of treatment of insanity among the superintendents of New England asylums, and a summary of changes in the methods of treatment and report of advances was annually recorded in the superintendent's report to the trustees of the asylum. The newly published *American Journal of Insanity*, whose beginning dates back to 1844 and which is the oldest specialty magazine in the United States, has played an important part in helping to promote interest in this specialty and to disseminate new information among asylum staffs all over the country. Many of the data of this paper have been drawn from the above sources.

Dr. Chandler reported on July 1, 1843, that the total admissions to the asylum were 76 during the first seven months of its existence. At the end of this time 22 inmates were discharged as recovered and improved and 6 as not improved; 1 died, and 47 remained in the asylum.

The price charged was $2.50 a week for out-of-state patients, and $2.25 for patients living in the state. For this, according to the report of the board of trustees, they were furnished with board, washing, mending of their clothes, fuel and light, medicine, the services of experienced and faithful nurses and attendants, the constant attention and watchfulness of the physician, means of riding and other exercise and amusement.[4]

In a discussion of the causes of the attacks, Dr. Chandler reported that the most prominent cause, as given by the patients' friends, was religious excitement. He records 21 patients as rendered insane by this cause. Ill-health brought 14 per cent of the patients to the hospital in the seven-month period; intemperance was the cause of admission in 4 per cent, slightly less than the present figure of 6 per cent, and injuries to the head, fever, fits and pecuniary embarrassment and domestic affliction in 4 per cent each. In 25 per cent of admissions the cause was unknown. The large number of admissions as a result of religious excitement was a rather unusual occurrence, even in a period when religion occupied a much greater part of people's waking existence than it does now, and the cause of this epidemic of mental illness was the wave of Millerism or the Miller delusion that was sweeping the eastern states at that time.

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The year 1842 saw the rise of Millerism, or Second Adventism, to its peak. It fell gradually after William Miller's prophecy that the end of the world would come in April, 1843, did not materialize. Religion in New England was a serious matter in 1842. The Devil, life hereafter, retribution for one's sins, were not preoccupations for Sundays only. Therefore when William Miller announced his end-of-the-world prophecies, he attracted wide attention all over New England, and through his lectures in Hampstead, Portsmouth, Exeter, Franklin and Concord developed many followers.[5] A number of them were unable to stand the stress and strain of the expectation of the oncoming holocaust, and many broke down mentally. Fortunately, the newly opened asylum was ready to receive those most seriously affected. In most of the 21 patients admitted for religious reasons, the admission diagnosis was Millerism. In 1847, four years after Miller's prophecy failed to materialize, this percentage dropped to 5 per cent. The first patient admitted came for reasons of Millerism, and one can imagine Dr. Chandler's consternation when the Millerites, as they were then called, had to be admitted to the hospital in rapid succession, so that nearly one out of every three patients was a victim of this epidemic of mental disease. Dr. McFarland, the successor of Dr. Chandler in the superintendency, summarized as follows, in his 1852 annual report, the situation faced by Dr. Chandler:

Current popular delusions usually leave the most enduring traces on the records of lunatic hospitals. The first page of entries of the Folio Records of the Asylum commencing with the 29th of October, 1842, and terminating February 25, 1843, is a page of instructive history that has no precedent or analogy. History records many instances of the insanity that has suddenly affected multitudes, but all failed to leave so sad a history written as this volume will preserve of the "Miller Delusion" which was just reaching its acme as the doors of this institution were thrown open to receive its infatuated victims.

In a previous report, I[6] have pointed out the manic-depressive character of most of the patients admitted to the asylum because of the Miller delusion. Nearly all these patients made a good recovery after they were taken away from their environment and the surrounding religious excitement. A number of them, however, as is common with manic-depressives, were returned to the hospital at a later date, oftentimes expressing the same religious delusions as on previous admission, although the second admissions took place in some cases from ten to twenty years after the first attack. That the Miller-delusion phenomenon was not confined to New Hampshire is evidenced by the following editorial that appeared in the *American Journal of Insanity* in January, 1845.

* By Millerism is understood the religious doctrine of the immediate destruction of the world — which has been extensively taught in this country by Mr. Miller and others, for two or three years past.

We do not intend to give a history of it, or to show that it is but the revival of a delusion which has often prevailed before to the great injury of the community. The evil results from its recent promulgation are known to all, for we have scarcely seen a newspaper for some months past but contains accounts of suicide and insanity produced by it.

Before us is a paper from the interior of this state, published in November, which says, "Our exchange papers are filled with most appalling accounts of the Miller Delusion. We hear of suicide, insanity and every species of folly." Another, a Boston paper, makes a similar remark and says, "One lady, one gentleman, belonging to this city, were committed to the insane hospital last week from the influence of this horrible delusion. The man cut his throat but was stopped before he severed the large blood vessel. Another man cut his throat from the same cause, causing instant death."

Like accounts we find in the Connecticut, Philadelphia, Baltimore and other papers. To this we might add that we have seen a considerable number of individuals who became deranged upon attending the preachings of this doctrine, most of whom have recovered, though we have some now under our care whom we consider incurable, and have admitted two deplorable cases within a few days.

By looking at the reports of the lunatic hospitals in the northern states, we notice that into three of them, 32 patients were received during the last year, whose insanity was attributed to Millerism.

Allowing something for the exaggeration and mistakes in the accounts of the evils that have resulted from the inculcation of this doctrine, it must be evident to all that they are alarming. But in our opinion the country has as yet seen only a small part of the evils this doctrine has produced. Thousands who have not yet become deranged, have had their health impaired to such a degree as to unfit them for the duties of life forever; and especially is this the case with females. The nervous system of many of those who have been kept in a state of excitement and alarm for months, has received a shock that will predispose them to all the various and distressing forms of nervous disease and to insanity, and will also render their offsprings born hereafter, liable to the same.

We have no hesitation in saying that in our opinion, the prevalence of the yellow fever or of the cholera has never proved so great a calamity to this country as will the doctrine alluded to.

Fortunately the dire predictions of Dr. Amariah Brigham, the writer of this editorial, failed to materialize. Millerism was soon forgotten, and in 1852 Dr. McFarland noted:

> It will be observed — perhaps with a smile — that "Spiritual Rappings," as the current instance in point, has furnished us its small quota of patients. . . . The victims of the *Isms* of the day are either of the class in whom but a breath is necessary to submerge frail reason, or else of grade with him
>
> who never had a dozen thoughts
> In all his life, and
> never changed their course.

Therapy consisted mainly in taking the patient away from his environment, attending to his physical needs, occupying him at useful tasks to prevent excessive self-absorption and applying psychotherapy, then described as "moral persuasion." The results were quite satisfactory considering the asylum's resources, and although the figures for recoveries in a number of asylums exceeded those that were ever obtained in any mental hospital since, and were occasionally padded so that visits home or brief paroles were counted as recoveries, thus making it appear that recoveries frequently equaled admissions in a single calendar year, this actually was not done with any evil intent. It was in a way a healthy sign, as some asylum superintendents hoped thereby to convince the public that insanity was a curable disease and that not everybody entering the asylum was entering a land from which no one returned alive. Such padding of statistics turned almost into a cult, and manipulation of figures by hospital superintendents became a commonplace occurrence in an attempt to impress their boards of trustees with the excellent results the hospital was achieving. This practice was criticized by a number of institutional heads including Dr. McFarland,[7] and later, with statis-

tical data, was effectively debunked by Dr. Pliny Earle.[8]

That patients in those early days received excellent physical care is evidenced from the following extracts from Dr. McFarland's report in 1850.

> Only two individuals were ever placed under restraint, and then only for the protection of others. A leather belt around the waist, with wristbands which loosely confine the hands, is sufficient for the purpose. For those inclined to tear their clothing, a mitten confined to their hand is put on.
>
> Our diet is always abundant, and of the best quality. The best of meats and the choicest brands of flour only are used. But one kitchen supplies the whole establishment, the officers, attendants and patients partake of the same food.
>
> From the many who formerly enjoyed the Asylum's benefits, we often receive visits, letters and tokens of kindly remembrances, which evince the strong hold the institution has upon their grateful esteem.

Dr. McFarland resigned from the superintendency in 1852, afterward to become superintendent of the Illinois Asylum for the Insane. He was succeeded by Dr. John F. Tyler, who headed the asylum until 1857. Dr. Tyler introduced a number of improvements in the hospital, installed fixtures for heating it with steam, and was instrumental in adding two wings to the hospital, so that at the time of his resignation the capacity had risen to 225 patients. Dr. Jesse P. Bancroft was selected by the board of trustees to assume the position vacated by Dr. Tyler when the latter left to take over the duties of superintendent of the McLean Asylum.

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For a period of twenty-five years Dr. Bancroft guided the policies of the asylum, to be succeeded in 1882 by his son, Dr. Charles B. Bancroft, who continued as superintendent until his retirement in 1917. Thus the Bancrofts were connected with the hospital for a period of sixty years out of the one hundred years of its existence. With the exception of the Monro and Tuke families in Britain,[9] and the Galt family in Virginia,[10] this is one of the few instances where father and son were connected with a single mental hospital for such a long period of time. Dr. Jesse P. Bancroft was endowed with keen critical faculties, and he possessed excellent insight into the problems of his patients and the administrative difficulties that he encountered. He further enlarged the heating plant in the hospital, introduced artesian wells as a source of water supply for the growing institution, and fostered the idea of individual buildings for various types of patients instead of the single unit or Kirkbride type of building.[11] He was faced five years after he assumed office with the loss of some of his assistants as a result of the Civil War, the threat of inflation, the rising cost of supplies and in fact all the problems that face hospital superintendents during the present war crisis.

In 1862, twenty years after the opening of the asylum, Dr. Bancroft reported that the resident population had risen to 196, or two and a half times the number admitted during the first year. Eighty-six patients were admitted during that year. Forty-one were discharged as recovered, 32 as improved, and 7 as unimproved, and 13 died. Dr. Bancroft noted:

> A satisfactory success has followed the efforts for the restoration of our patients; and it is a matter of sincere pleasure that we are able to record an unusually large percent of recoveries, and among them are some so cheering that we may well regard our labors amply rewarded.

He deplored the lack of better facilities for occupational therapy but stated:

> In pleasant weather much pleasure and benefit has been derived from exercise in the open air, in farming, gardening, walks and rides in the adjacent country, or those harmless games which are at once healthful and captivating. Much sewing, knitting, and similar work has been done by the female patients, which has a second value, great, though less than that accruing to the laborer herself. This is emphatically true of a considerable amount of sewing and knitting *done for the army. No occupation has seemed to afford them more unalloyed pleasure, than that done for the noble and self-sacrificing defenders of our country.*

The last remark indicates that the repercussion of the War between the States had also reached the walls of the asylum.

Dr. Bancroft's observation on the causes of insanity and the importance of early hospitalization were pregnant with ideas.

> As with other diseases, a certain proportion of those attacked with insanity do not recover under any circumstances; nor does death come to remove them from the distracted life in which the disease has left them. These pass into the various chronic forms; in all of which reason, the guide of life, loses its control, and the subject passes under the control of the ever-changing impulses and the animal instincts. The tendency is ever toward a lower level — a state further removed from the normal standard of thought and action. Even in the wreck of reason and responsibility, Nature has kindly provided that the human being need not be wholly a wreck. Such is the organization, that, like an automatic machine, when the intelligent, directing mind is cast from its supremacy, still, under a law of habit, if the individual can be under the influence of another mind to keep him in motion, he will follow to a great extent the routine of ordinary life, when, without this exterior influence, he would subside into stupid inaction, and fall under the direction of the mere animal instincts. It is by availing themselves of this principle, that asylums,

in cases of the incurable, are able to transform what would otherwise be little more than existence into a life possessing many rational occupations and enjoyments. The constant presence of attendants and other guiding influences supplies this motive force from without, this substitute for self-guidance, and thus there is kept alive a grade of habits and activities entirely impossible in the absence of these helps. This outside aid is to the demented what the splint is to the broken bone: without it the subject falls to the ground, but with it very respectable locomotion is secured.

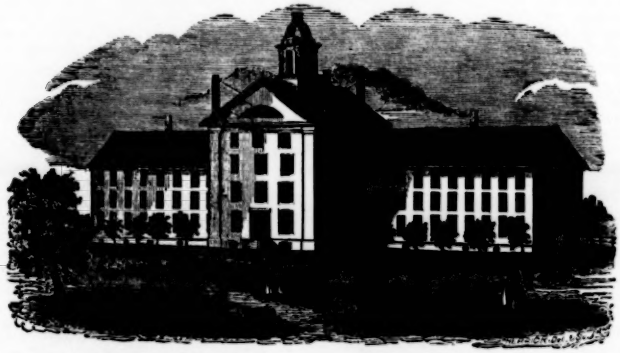

FIGURE 1. *New Hampshire Asylum for the Insane (1844).*

In his report in 1864 Dr. Bancroft lamented the increase in cost of living as a result of the war, and the difficulty of making ends meet on a pre-war budget.

> The very great advance in the price of labor, provisions and fuel, during the last eighteen months, has been sensibly felt at the Asylum, and has made it a difficult matter to support the institution from its current receipts. This statement will create surprise in the mind of no one. The fact is one incident to the war and to be often encountered elsewhere throughout the country. It may be more clearly appreciated however, by comparing the present prices of some of the leading articles of consumption, with the prices of the same articles one year ago. For this purpose your attention is respectfully invited to an examination of the following:

Articles	Price June, 1863	Price June, 1864
Flour	$7.50 per bbl.	$10.00 per bbl.
Sugar	12½ cents per lb.	20 cents per lb.
Tea	80 cents per lb.	$1.12½ per lb.
Butter	18 cents per lb.	30 cents per lb.
Cheese	10 cents per lb.	18 cents per lb.
Molasses	40 cents per gal.	80 cents per gal.
Wood	$4.00 per cord	$6.00 per cord
Labor	Twenty-five per cent higher than one year ago	
Meat	Fifty per cent higher than one year ago	

The war also left its stamp on the hospital wards. In the causes of death for the year Dr. Bancroft reported:

> The other [cause] was acute pericarditis in a contraband from the State of Alabama, and directly from the fatigues and exposures of a forced march in Virginia. The disease was far advanced on admission, and terminated on the fifth day. The delirium for which he was brought to us was a symptom of the acute disease and not insanity.

Psychiatry in 1860 consisted of a mixture of metaphysics, general medical precepts, a Hippocratic classification of most cases into mania or melancholia and many statistical data gathered in British, French and American asylums, but little of which could be applied successfully in the individual case. Here and there appears evidence of reluctance in accepting the immediate precipitating cause of an attack of mental illness as the most important etiologic factor, and some of the hospital records contain excellent descriptions of patients' symptoms and some new speculation as to the real cause. The therapeutic results were satisfactory with the means available at the time, but there was also an awareness in the minds of intelligent asylum physicians that with their present state of knowledge they could go so far and no farther.

In his report for 1866 Dr. Bancroft gave a lucid description of a case that was later classified by Kraepelin as dementia praecox and by Bleuler as schizophrenia, and also gave suggestions as to treatment that in the main have not changed in the last sixty years.

> Still again there is the silent, undemonstrative individual, given up to a state of "brown study, distraction and reverie" — a waking dream which, if not broken in upon, works mischief to the brain and mind.

But, while the forms in which the diseases of the mind and feelings are manifested are almost without limit, one thing is true in all; namely, a morbid concentration of the thoughts upon self, with an intensity proportioned to opportunity. The mind inclines to retire within itself, shut out the rest of the world, unmindful of its true relations, and make self the center of all thought and interest.

The continuance of this state is fraught with danger to the integrity of the organism. The cerebral action by degrees becomes accommodated to it; the abnormal condition, becoming habitual, is continued into the chronic state, and is incapable of change.

It becomes, therefore, a leading object in treatment to interfere with this world of self — scatter its creations and fancies and people it with objects and thoughts foreign to its own.

Sleep therapy apparently is not new. In 1871 Dr. Bancroft wrote about a new and powerful drug, chloral hydrate, a boon to sleepless sufferers.

In this connection I will briefly refer to a medicinal agent recently added to our resources for the treatment of insanity, which has attracted so much attention as to give consequence to every careful observation of its use. Whether all that is claimed in its favor, on the one hand, or all the fears entertained in regard to its use, on the other, prove true, it is equally a matter of interest to the public, that the experience of those who have carefully used it should be placed on record. I refer to the Chloral Hydrate as a remedy for wakefulness.

We commenced the use of this drug a little more than a year ago. It being a powerful medicine, and new to physicians as such, we proceeded cautiously with the trial of it, selecting the cases with much care, and watching closely any effects produced. A special record was opened for the cases in which the chloral was used, and continued through the year. From our observations thus far, we have reason to be gratified with results.

Dr. Bancroft also appreciated the importance of habit pattern formation in mental illness, especially in recurrent cases such as those of manic-depressives, and the need of early treatment in such cases. Much of what he said anticipated Pavlov's ideas on conditioning as applied to psychiatric disorders. He discussed the problem at length in his 1879 report.

There are no inconsiderable number of persons in every community who suffer several fresh attacks of insanity during their lives. Still, those persons are essentially well between the insane intervals, and with others share the responsibilities and bear the burdens of life. Probably a large proportion of these each time lose something of their native mental vigor, though in some it is difficult to see it. It would seem that in many of these cases there is developed by degrees a tendency to the recurrence of the insane cerebral action; that this alternation gains the force of a habit, by the same law on which habits are formed in normal directions. In some, this ends in a pretty regular division of the remainder of life between the sane and insane states. If this tendency is once set up in the nervous system by the first occurrence of insanity, the importance of a recognition of it cannot be overestimated. For, considering the physiological law of habit in the nervous system, intelligent effort at this period would be of much avail in warding off the evils which otherwise impend. Every act or influence tending to call into activity the morbid states should be studiously avoided; and everything favoring the continuance of healthy mental states should be as studiously cultivated and fostered. Some persons succeed in learning this lesson, and thus escape a second attack, but more do not; but, regardless of the relation of methods of living, as regards the appetites, the passions, and activities of life, to mental states, blindly overstep the bounds of prudence and are precipitated again into the insane state. At length, the recurrence is brought under the law of habit, and each time a less and less exciting influence is required, and the alternation comes to be almost automatic.

The importance of separating patients according to their mental condition and giving individual care to those who would benefit from it is emphasized by Dr. Bancroft in 1881.

More and more, each year, general routine methods are giving place to individual care and treatment — those more reliable have larger latitude, and self-dependence is trusted to the outer limit consistent with safety and a prudent regard to the liabilities in the case. It is easy to see how much more readily and effectively such a principle can be carried into practice with the help of properly adjusted buildings than in those so monotonous in construction as to enforce a disregard of the nicer differences in personal character and symptoms which any considerable number of cases is sure to present.

One of the indirect results of adopting this modified plan of buildings (as far as practicable) will be to diminish the contrast between life in the institution and ordinary domestic life. In the degree to which this can be done, will be lessened the reluctance felt to resorting to a public institution for care and treatment urgently needed, yet impracticable at home, both on the part of the patient and friends.

In his last annual report, written in 1882, Dr. Bancroft summarized the principles of therapy practiced by him during his twenty-five years of superintendency and compared it with standards used elsewhere. He was also free in his criticism, and was proud of the methods he had used in New Hampshire with so much success.

The same general plan of management adopted heretofore has guided our practice the past year. To state it in a word, we should say that the prime effort has been, leaving out all specific dogmas, routine methods and panaceas in management, to make each case an individual study, and then to adopt the course of treatment and care indicated by the facts in the case, so far as we have the means to do it. In this effort it is sought to signalize insanity as a thing by itself as little as possible; in all arrangements, to follow the ordinary usages of general society until compelled to make exceptions by the loss of self-controlling power on the part of the patient; and to trust the latter with all the responsibility he can safely bear. Thus, as much personal liberty is granted, and as little repression imposed, as possible, although it has

not been found practicable to discard all restraint. In settling questions of this class, the exercise of common sense on the actual facts in the case has been our reliance, in preference to any of the special dogmas which sometimes have gained a prominence out of proportion to their real consequence. For example: certain asylums in Scotland have become widely celebrated on account of the special prominence given to the circumstance of unlocked doors, even while that result is achieved by the device of a guard standing at each door to dispute the passage of any untrustworthy patient. While all practicable freedom is a thing most desirable, still, this show of it without the fact is to my mind a ruder shock to the sensibilities than the lock for which the guard is made a substitute. A deceptive offering of what is not really granted is the most objectionable of measures. This practice is more attractive in the abstract than in the concrete.

Thus Dr. Bancroft set forth a policy to which American psychiatry has wholeheartedly subscribed and which it has tried to follow. He also foresaw, however, the shortcomings of the methods of treating the insane *en masse*, a tendency that became strongly apparent in a number of states for the next fifty years as a result of poor facilities for patients, shortage of physicians and general indifference. The following paragraph expressed his final opinion in this matter.

> A careful observation of the current history of the hospital life of the insane for the last twenty-five years has left upon my mind the firm conviction that the true germ — the animating principle of the improved management of the insane in hospitals at the present time, as also its promise for the future — is

NEW HAMPSHIRE INSANE ASYLUM. Page 1

No. 1 Name, William Copp.

Admitted, October 29 1842.

Nativity, Residence, Deffenboro.

Name and Nativity of Parents,

Civil Condition, Married Occupation, Farmer

Age, 25 Height, Weight, Complexion,

Causes: Predisposing, Millerism

Sister and Aunt Insane

Exciting, Millerism

How admitted, Friends No. of admission to this Asylum,

Former case numbers with condition on discharge,

Other hospitals,

No. of attack Duration, Two weeks

Diagnosis on admission,

Diagnosis on discharge,

Discharged January 5. 1843 Condition, Improved.

Readmitted 18 No.

FIGURE 2. *Admission Page from the Record of the First Patient to Be Admitted to the New Hampshire State Hospital.*

the growing recognition of the individual in dealing with the insane, in place of the old method of regarding them, for study and treatment, as a class. The old traditional theory practically treated them as a distinct group of mankind, with identical attributes and wants. The logical outgrowth of this doctrine was to provide for all similar surroundings, and subject all to identical regimen. Thus arose the huge classifications, wholesale methods and sameness of remedial appliances. On this plan the tendency was to sink the individual in the class, and run into a monotonous round of measures. In contrast with this, the modern, and I think the coming, view is to bring the individual to the front, not only in the study of individual symptoms of disease, but in the recognition of personal differences, constitutional and acquired, — differences of character, taste, habits of life, and the like, — as the rational criterion of the measures required to make treatment really remedial. Approaching the subject from this direction, the demand for great diversity of agencies and influences, growing out of the personal differences just alluded to, becomes imperative. The more this view is indulged, the more it appears to the hospital physician that instead of a homogeneous group to house, to feed, and to treat as a unit, he has a society, made up of persons varying indefinitely in characteristics, and varying as greatly in their requirements for successful remedial treatment as do the members of general society in their personal characteristics. Experience has taught nothing more clearly, than that if these personal differences are ignored and sunk in a routine, treatment fails to do its work.

Dr. Bancroft's successor, Dr. Charles P. Bancroft, or "young Bancroft," as he was then called, maintained the advanced policies of his father after assuming office in 1882. His annual reports continue to represent an exposition of the problems that confronted the American psychiatrist of that period. There was an attempt at continuation of sedation therapy by the use of chloral hydrate, trional and dormiol. In 1896 several papers appeared praising the use of thyroid extract in insanity. One by Dr. Charles G. Hill,[12] on observation of the effect of thyroid feeding on the insane, was followed by a longer study by Mabon and Babcock[13] giving glowing reports of results obtained in a large number of cases. Also a paper by B. W. Stone on "Thyroid in Insanity" was presented at the forty-fourth annual meeting of the American Medico-Psychological Association in 1898, presenting additional evidence of beneficial results of the administration of thyroid extract, in doses of 30 to 60 gr. daily until the patient developed an elevation of temperature. Unfortunately, the final results were not any more lasting than those reported by Hoskins and Sleeper[14] in 1930. Dr. Bancroft wrote in his annual report in 1900, "Thyroid treatment has been faithfully tried with but indifferent results." A number of records in the hospital of that period testify to the veracity of his conclusions.

Dr. Charles P. Bancroft was the first hospital head to organize a training school for nurses in New Hampshire. The school at the asylum was opened in 1888, and has continued to admit students for training uninterruptedly since that time. It was the second mental hospital in New England to open such a school for psychiatric nurses,[15] the first school having been opened at the McLean Hospital in 1882.

The New Hampshire Asylum for the Insane under Dr. Charles P. Bancroft was also one of the few institutions that substituted Kraepelin's classification of mental disease for the outmoded Hippocratic classification of mania and melancholia followed before 1900. Although Kraepelin did not begin to formulate his ideas definitely until 1896,[16] records in the state hospital in 1900 already displayed the new diagnostic classification.

In the meantime, the resident population of the hospital continued to increase. In 1902, twenty years after Dr. Charles P. Bancroft assumed office, and sixty years from the date of its opening, the population was nearly 500. There was no proportionate increase in the number of physicians, and a plaintive note appears in the reports bemoaning the fact that more funds will be required if the hospital is to maintain its standards. As in common with all the states at that time, the cry for economy was first practiced in the appropriations for state institutions, and the state hospitals were the first to suffer.

Although there was much activity in some institutions during the first two decades of the twentieth century, state-hospital standards in psychiatry failed to keep pace with the progress made in other specialties in medicine. Freud's work in psychoanalysis was becoming known, but was of little practical use in the large mental hospitals. Malaria therapy in neurosyphilis was introduced in the United States in the middle nineteen-twenties, but was not accepted in most hospitals until 1930. Individual therapy was less developed than it had been in the previous century, since there were more admissions to the hospitals, more patients per physician, more dependence on group therapy, and therefore less knowledge of the patient's individual problems. In the majority of institutions too much attention was being paid to classification, and at the end this procedure became almost a fetish. Much more time was spent on it than on actual therapy, and most frequently the classification of certain groups depended on local criteria and the individual physician's whims. Dr. Charles P. Bancroft[17] fully appreciated this fallacy, and in a penetrating analysis pointed out how institutional incidence of certain types of mental illness in Massachusetts varied to

such an extent that in two neighboring state hospitals twice as many manic-depressive or dementia-praecox patients were admitted in one as in the other, although the population in both districts at that time was homogeneous. This analysis exposed the lack of knowledge of the exact etiology of mental illness, dependence on a descriptive classification to cover up such ignorance and a willingness to substitute a new terminology for actual search for further data.

The Laconia State School for the Feebleminded came into existence in 1900, largely through the effort of Dr. Bancroft. Dr. Charles S. Little was the first superintendent, and after he organized the school his administrative ability was recognized and he was offered a position at Letchworth Village, New York, where he continued his excellent work. He was succeeded in the superintendency in 1910 by Dr. Benjamin W. Baker, who has ably continued at this task and is still in charge of the school.

The history of psychiatry in New Hampshire would be incomplete without mentioning the efforts of Mrs. Charles P. Bancroft. She played a large part in developing the training school for nurses at the New Hampshire Asylum, and was the prime mover for the organization of the Laconia State School for the Feebleminded. She was also appointed a member of the first board of trustees of the school, and her influence was much felt in getting the new institution properly started. Intelligent, able and forceful, she belongs to the group of New England women which has produced a Dorothea L. Dix, a Linda Richards and a Lucy Blackwell. No wonder that when the editor of the *Manchester Union* was informed that the newly appointed board of trustees to the school consisted of three prominent male citizens and Mrs. Bancroft he reported, "Now the Laconia State School has a new Board of Trustees which consists of three weak-minded men and one strong-minded woman." It is thanks to much of the efforts of this strong-minded woman that New Hampshire has a good school for the feebleminded, a hospital for women and children in Concord, a children's-aid society and many other charitable organizations to the development of which she has devoted much of her time and energy.

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In 1917 Dr. Charles P. Bancroft retired, to be succeeded by the present superintendent, Dr. Charles H. Dolloff. The hospital population rose to 1233 in 1917 as a result of the State's taking over the care of many of the chronic insane who were previously cared for at the county farms. Another war was on, and Dr. Dolloff had to face the loss of much of his personnel and a number of staff physicians, but the work at the hospital went on and the patients continued to receive excellent care.

The last quarter of a century has seen much progress in the therapy of mental illness. This advance is also reflected in the annual hospital reports. In 1928 the use of malaria in the treatment of neurosyphilis was introduced, to be superseded in 1934 by artificial-fever therapy. In 1930 the combination of carbon dioxide and oxygen was tried for the treatment of catatonia, but this was given up after a short time because of its limited value. Hoskins and Sleeper's[18] enthusiastic report on the administration of thyroid extract in schizophrenia brought on a revival of this form of therapy, with results no better than those reported by Dr. Charles P. Bancroft in 1900. Psychoanalysis reached its heyday for a time in the thirties, when there were two analysts on the staff, but came to be disregarded later on as a doubtful and rather expensive therapeutic procedure for a state mental hospital.

Mental-hygiene clinics were first started by Dr. Dolloff[19] in 1930, in the form of a clinic in Manchester held once a week. This clinic has since developed into a network of clinics embracing all sections of the state, requiring the services of several physicians and social workers and helping hundreds of children annually.

A law permitting the sterilization of patients in mental hospitals and schools for feeble-minded was passed in New Hampshire in 1917, after an elaborate survey of hereditary factors in mental illness in the state, inaugurated by Dr. Charles P. Bancroft in 1910. The law was modified in 1929, thanks to the efforts of Dr. Charles H. Dolloff, so as to increase its usefulness. As a therapeutic measure the law has proved of greater importance than it has as a eugenic one.[20]

Dr. Dolloff's latest biennial report, published in 1940, gives a bird's-eye view of the problems faced by the hospital superintendent nearly a hundred years after the foundation of the asylum. He wrote as follows:

> In our psychotherapeutic work we have been somewhat hampered by the small size of our medical staff, which makes it impossible to devote the individual attention to patients which would be desirable, though such attention has been given whenever possible. To compensate for this, group therapy has been extensively used. Such therapy has been greatly simplified as a result of the stability, the long years of training and co-operative spirit of the employed personnel of the hospital. Additional physicians to administer individual psychotherapeutic treatment are urgently needed.
>
> Among the specific treatments employed with success in psychiatric conditions have been the following:

The use of Dilantin, largely replacing older methods of treatment, including phenobarbital, has greatly simplified the problem of epilepsy.

Though the use of insulin in the treatment of functional ailments has been largely given up because of the rather complicated preparation necessary for its use, Metrazol has been used extensively. While in all probability very few patients have been permanently cured as a result of the use of Metrazol, it has proven a very effective adjuvant for use in conjunction with other methods of treatment.

The use of chemotherapy and pyretherapy in the treatment of neurosyphilis has been continued and the results have been very gratifying. In many cases so treated apparent cures have been effected, and in practically all cases varying degrees of improvement have been noted.

The hospital has recently co-operated with the venereal-disease clinics of the state in giving preventive fever treatments to a number of potential neurosyphilitic patients.

We have attempted to keep abreast of general medical progress, and have taken advantage of new methods as they have developed. Among such methods might be mentioned: chemotherapy in infectious diseases, such drugs as sulfanilamide, sulfapyridine and sulfathiazole being used extensively; vitamin therapy, including intraspinous use of vitamin B, in chronic neurologic conditions; endocrine therapy, including the very recently developed and as yet unpublicized oral use of diethylstilbestrol.

If Dr. Chandler could visit the asylum today, he would find that the original unit that he helped to build to accommodate 96 patients had grown nearly ten times in size. Besides, ten other units have been added, and the total population of the hospital has risen to almost twenty-five times its original capacity. Dr. Jesse P. Bancroft's dream of individual buildings to take care of the various types of patients according to their needs has also come true. The number of permanent employees is six times the number of patients reported by Dr. Chandler to have been admitted during the first seven months of the asylum's life. Nurses have become an integral part of the hospital's therapeutic scheme, and Dr. Charles P. Bancroft's nursing school has grown and expanded, so that at present the hospital has the largest number of nurses per patient of any state hospital in the country.[21] The ratio of physicians to patients is not so high as the superintendent would have desired, but economic and other factors prevented such an expansion, although the ratio still ranks among the highest to be found anywhere.[21]

Dr. Chandler would also find fever used as an ally instead of opposed as an enemy in the treatment of mental disease; electricity, harnessed by Dr. Rush's contemporary and townsman Benjamin Franklin, used for curative purposes, to "shake" some patients out of their attacks, and occasionally as a "tranquilizer"; artificially induced sleep used to advantage; and a large variety of unheard-of chemicals replacing poppy extract, the standby of his era.

He would encounter much to be surprised at — yes — but he would also have some remarks of his own to offer before returning to his city of Worcester.

"Yes," he would say, "you have grown, no doubt. Your annual number of admissions is six times the total number of patients we had room for when the hospital was built. One out of four of your patients comes to you, however, because your houses are smaller, your living standards have changed, and old grandma or grandpa, if feeble and forgetful, is no longer wanted at home. You are not curing any more of them than we did in my day with good food, clean bedclothes and an occasional glass of port wine. Yes, it is nice to give them such good care in the hospital and leave the family free for work in the factory or in the field, and to find time to entertain friends or go to the flicker shows.

"We did not have much syphilis in my time, and then it only rarely affected the brain; and when it did cause paralysis, we knew there was no cure and let them die. You are doing good work in this field with your fever and drugs, but many of these patients who would probably have been better off dead now have their lives prolonged, only to remain permanent boarders in your hospital for the rest of their days, and of little use to themselves or to others.

"And as to those silent, undemonstrative patients, those sunk in 'the state of brown study, distraction and reverie' so well described by my successor Dr. Jesse P. Bancroft, you really seem to do a lot for them with electric shock, Metrazol shock, insulin shock, various sleep potions, water cures and other fancy treatments. This sort of treatment tranquilizes many of them when they are disturbed, and probably cures some. Our teacher, Dr. Rush,[22, 23] had his own gadgets for such purposes; if they did not work he bled his patients, purged them, or made them puke. It quieted most of them, and as to the number of final cures produced by insulin, Metrazol or electric shock, let us wait for another twenty years before making a final appraisal. It might require the services of another physician like my successor, Andrew McFarland, or another Pliny Earle[9] to unscramble and analyze some of the excellent results you are reporting now with all these newfangled methods, so as to determine whether another 'cult of curability' is not being fostered among you. It is possible that your actual percentage of recoveries is not much greater than that we obtained by removing the patient

from his home and from doting or obnoxious relatives, feeding him up well and keeping him busy, with the additional use of moral persuasion.

"You call the latter 'psychotherapy,' and some of you claim spectacular cures for a branch of it called 'psychoanalysis.' It takes a lifetime to cure a patient by this method, and at times you engraft a new illness to cure the original disease, such as the malaria you use to cure syphilis, but the results are not so good. You believe that mental evacuation or catharsis is good for a person — yes, if not carried to excess so as to produce a case of mental dysentery and perpetual dependence on the moral straightener — he a form of inseparable chamberpot — for constant support. You also claim that we old-timers did not appreciate the importance of sex in the production of mental illness until it was rediscovered by a man named Freud.[23] We knew as much about it, but our customs did not make it easy for us to discuss it as openly as you do, and, besides, a patient given a frank diagnosis without an easily available cure is at times worse off than one left in ignorance about his condition. Did not that grand old man Burton[24] devote one third of his *Anatomy of Melancholy* to the description of the symptoms and cure of love melancholy for those who are able to read and understand between the lines? And as to the many cures reported with psychoanalysis, this matter will also require further rechecking, for the secretiveness of these moral straighteners makes it hard for the stranger like myself to find out whether another cult has not grown up among you. After all, there was Elisha Perkins,[25, 26] the clever Yankee from Connecticut who for a time with his tractors, it was said, was just as adept in curing such illness as you and I; and there was that transplanted Viennese, Mesmer[27] whose personal success has never been equaled and who has taught us all what could be done with suggestion properly used; and that farmer from Alstead, Thomson,[28] with his water cures and herbs; and also that very successful neighbor from the hills of Bow, Mary Baker Eddy.[29] Time will only tell whether there is really much justification for all that is claimed for this new brand of moral persuasion. In the meantime, you have the resources, the urge to find out and the material to work with: You are on the right road, and God bless you!"

1426 Elm Street

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THE MEDICAL MANAGEMENT OF INTESTINAL OBSTRUCTION*

With Special Reference to the Use of the Miller–Abbott Tube

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THE title of this paper is not intended to imply that intestinal obstruction is a medical problem alone, but it is meant to suggest that this condition may not be an acute surgical emergency such as it has been considered until a relatively recent date.

Strangulation of the bowel is still, and probably always will be, an indication for prompt surgical intervention. Early intestinal obstruction from an obvious cause such as external hernia is also a surgical problem. However, we have at our disposal today a means of decompression and readjustment of the altered physiologic state brought about by intestinal obstruction without resorting to surgery that should be well understood and utilized.

The mortality for nonstrangulated cases when treated by immediate surgery was formerly 30 per cent or more. The recent mortality with the use of nonsurgical methods of decompression, alone or in conjunction with surgery, is 10 per cent or less.[1-3] This dramatic reduction speaks eloquently for medical therapy.

There has been a great deal of surmise about the mechanism of death in nonstrangulated cases of intestinal obstruction. There were formerly numerous unsuccessful attempts to isolate a "toxic substance." With the early work of Hartwell and Hoguet[4] followed by that of many others, the chemical investigations appeared that demonstrated the disturbed fluid, salt and protein balance. Intravenous alimentation became a common practice, but still there was no marked fall in the mortality rate. It remained for Wangensteen[5] and Fine et al.[6] to show the importance of simple distention as the key point from which the subsidiary physiologic and chemical changes had their origin. Abbott and Johnston[7] were next able to demonstrate that when the distention was controlled and nutrition maintained, the patient could continue in good condition almost indefinitely in spite of a complete obstruction of the bowel. It is the decompression of the distended bowel, irrespective of the cause of the distention, that brings about the greatest improvement. The realization of this factor is responsible for the great reduction of mortality in the treatment of intestinal obstruction.

Criteria for the diagnosis of intestinal obstruction have been laid down in all the textbooks. Colicky abdominal pain, abdominal distention, persistent nausea and vomiting eventually leading to the vomiting of fecal material, and obstipation are the usual symptoms. The patients appear sick and dehydrated and are often in shock. Auscultation of the abdomen reveals early generalized increased peristalsis, with the later development of peristaltic rushes, giving the characteristic tinkle of gas and fluid in a distended bowel and finally a completely quiet abdomen. The vital signs are usually moderately elevated and a slight leukocytosis is present.

X-ray examination may be of considerable help in establishing the diagnosis at an early stage. The accumulation of gas within the obstructed bowel is visualized by a flat film of the abdomen. Gaseous small-bowel distention presents the typical ladder pattern of the coiled loops, and the distended colon is identified by its haustral markings and location. A radio-opaque enema may be used in colonic obstruction to locate the site and may give information concerning the type of lesion. Similar information can be obtained in small-bowel obstruction that is being treated by decompression with the Miller–Abbott tube by the injection of a small amount of a thin mixture of barium through the suction lumen. The opaque mixture is withdrawn by suction at the conclusion of the examination.

Symptoms and signs vary in severity and in order with the site of the obstruction. High obstruction produces symptoms earlier and of greater severity, with nausea and vomiting predominating and distention less marked. Constipation appears only late, and evacuations may occur from the bowel below the obstruction for several days. Low obstruction produces a reversal of this order, with constipation as the usual presenting complaint, distention very marked, and nausea and vomiting appearing late.

The one phase of diagnosis that has become increasingly important is the recognition of strangulation. When all cases of obstruction were operated on, the recognition of strangulation was of academic interest. Now, however, when oper-

*Presented at the annual meeting of the New Hampshire Medical Society, Manchester, May 13, 1942.

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ation may be delayed for days or weeks, its presence is of the utmost importance.

Obviously, there can be no rule for the diagnosis of strangulation, and a complete discussion of the problem involves the differential diagnosis of the acute abdomen. However, a few points should be mentioned. Lesions associated with circulatory interference, such as incarcerated hernia, intussusception and mesenteric thrombosis, must be considered at once and ruled in or out, so far as possible, by the history and physical examination. The patient with a strangulated bowel usually appears more toxic, and the leukocyte count is elevated above that expected in simple obstruction. A progression of the signs and symptoms over a short period of time strongly suggests circulatory embarrassment of the bowel. Tenderness on palpation localized in a small area of the abdomen and the palpation or demonstration by x-ray of an isolated loop of distended bowel are suggestive of a strangulated bowel. Persistent pain between the typical attacks of colic is usually on an ischemic basis. Abbott[8] also mentions that small doses of morphine sulfate usually relieve the pain of simple obstruction but not that of strangulated bowel.

Distention of the bowel may result from an obstruction of its lumen or from paralysis of its wall. In the mechanical group, external hernias account for about 44 per cent of cases.[9] Adhesions cause 31 per cent, and these may be subdivided into 13 per cent as a late postoperative complication, 11 per cent as an early postoperative complication and 7 per cent where no operation is involved. Neoplasms account for 9 per cent of cases, intussusception 5 per cent, volvulus 4 per cent, mesenteric thrombosis 3 per cent, gallstones 2 per cent, internal hernias 1 per cent and diverticulums 1 per cent. The paralytic type of distention is usually preceded by peritonitis, acute infection elsewhere in the body or shocking injury. The two groups frequently merge. In any case, the normal emptying mechanism of the bowel fails and this initiates the pathologic physiology that is always the same.

The first effect of obstruction is the halting of the fecal stream, with an accumulation of the oral intake and of the secretions of the bowel, liver, gall bladder and pancreas above the point of obstruction. The secretions of the bowel itself are increased by the stimulus of the early distention. Gases next appear, and their presence is one of the first demonstrable signs of disordered function. They are chiefly swallowed air and carbon dioxide, with gases produced by fermentation playing a lesser role. The absorption of intestinal gas depends chiefly on the gradient between the partial pressure in the vessels of the bowel and that in the inspired air. Thus, carbon dioxide is ordinarily quickly absorbed, whereas swallowed air must be expelled. It is apparent that swallowed air becomes the significant gas in the production of distention in the obstructed bowel. Wangensteen[10] demonstrated this clearly when he showed that dogs with a complete obstruction of the bowel, but also with an occluded esophagus, do not become distended.

As the distention from the fluid and gases progresses, first the veins and the arterioles are compressed against the muscularis, thus producing edema of the bowel with a resultant loss of absorptive power. With the cellular breakdown of the mucosa the bowel becomes a simple osmotic membrane and more intracellular fluid is drawn into the lumen. Thus a vicious cycle is instituted that, if untreated, progresses until the vascular supply of the bowel is destroyed and gangrene and death ensue. The vague toxic factor is probably the result of products of bacterial invasion and protein breakdown after interference with the blood supply has occurred.

The motor effect of the distention is accelerated peristalsis initially with a progressive reduction thereafter. As the diameter of the intestine increases, the efficiency of peristalsis increases also. The volume of the contents is greater and thus the amplitude of each wave is increased. This is true until the distention reaches the point of interfering with the circulation, when motor activity diminishes and is finally abolished. There is a wide difference between the blood supply needed to maintain activity and that needed to support the life of the muscle, as is indicated by the prompt restoration of intrinsic activity by decompression of the bowel. The nausea and vomiting that occur are the result of a reversal of the fecal stream and not of a reversal of peristalsis. Regurgitant waves of peristalsis do occur proximal to the mid-duodenum but not distal to that point. As the dilatation of the bowel progresses beyond the point of maximum efficiency, a wave progressing caudally creates a current within the lumen in the opposite direction.[11]

The results of these changes are easily seen. Dehydration appears rapidly owing to the lack of intake, the loss of fluid by vomiting and the outpouring of tissue fluid into the bowel lumen, where it is lost to the organism just as if it were outside the body. With the fluid depletion there is a large loss of chlorides. If the obstruction is high and the patient is vomiting frequently, the loss is chiefly hydrochloric acid from the stomach, and alkalosis may rapidly appear. If the obstruction is low, the loss is chiefly sodium chloride, and

the reduction of total base may precipitate acidosis. The salt loss in the fluid within the bowel is approximately 6 gm. per liter. A severe and rapid hypoproteinemia also develops in these cases. The cause is not well understood, but is probably the loss of protein through the damaged mucosa, roughly similar to the loss through a damaged kidney. The vitamin stores are rapidly depleted and a state of acute malnutrition and vitamin deficiency appears.

Exact information concerning the metabolic state can be obtained with certain laboratory data — serum protein, bicarbonate and chloride levels and the hematocrit.

Treatment

An excellent rule of treatment is laid down by Abbott. In any case of intestinal obstruction, he says, the decision is not whether it should be treated medically or surgically but whether it should be treated medically or surgically at that particular time. This is a decision that must be reached at each visit to the bedside.

Treatment is directed at correcting the results of the obstruction, and as long as this can be accomplished the cause is of little importance. The relief of the distention is the prime consideration, and while this is being attempted, measures to restore the metabolic balance can be initiated. The last step is to effect the proper nutrition of the patient and replace the vitamin supply.

In discussing treatment the situations requiring immediate surgery will be omitted. These include the cases in which there is evidence of strangulation. They also include early mechanical obstruction, by which is meant those cases seen within the first twenty-four hours in which the cause of the obstruction is obvious, such as an external hernia. Left-sided colonic lesions, as a rule, warrant immediate surgery. In the last type of case, the slow development of symptoms tempts one to delay and decompress by medical means. However, unless the ileocecal valve becomes incompetent and small-bowel distention is present, the results by tubal decompression are poor.

Generally speaking, delayed operation is indicated in cases seen after the first twenty-four hours in which distention and dehydration are present. Right-sided colonic lesions may usually be delayed, since the small bowel can readily be decompressed and utilized to a point approximating the site of obstruction. Early operation should never be done in paralytic ileus, and probably never in intermittent obstruction in patients who have had several abdominal operations. The latter cases are almost invariably a combination of slight angulation with local edema and spasm, and decompression usually relieves the obstruction. They are always subject to recurrence, but less so than if another laparotomy is performed.

It is in the paralytic group that medical management reaches its peak. This problem usually arises in peritonitis and pelvic abscess and following abdominal surgery. It is extremely gratifying to see an acutely ill patient with peritonitis and intestinal obstruction following a ruptured appendix begin to take a reasonable diet within a few hours after intubation and in a few days begin to have normal bowel movements. It is this type of case in which another operation would be extremely hazardous that operation may be avoided or delayed by medical decompression until the patient has been restored to a normal physiologic state.

Once it has been determined that a case is suitable for medical management, attempts must be made to adjust the disturbed electrolytes and relieve the dehydration. The first concern is the hypoproteinemia, which is rather extreme and accounts for a good deal of the edema of the bowel at the site of obstruction.

Partial obstruction may readily be converted into a complete obstruction on the basis of low-protein edema. Plasma or whole blood should therefore be given these patients early and as often as necessary.

Initially the usual fluid requirement is at least 3 liters. The necessary composition of this fluid varies but at first can safely be physiologic saline solution. After the first twenty-four to forty-eight hours the amount of salt given should be carefully calculated from the visible fluid loss, estimated invisible loss and blood-chloride determination. Once the hypochloremia is corrected, an excess of salt may lead to retention of fluid and may actually increase the obstruction. When laboratory data are available, the amount and type of fluid can be more intelligently estimated. Sodium lactate solution may be given to correct an acidosis, and more blood may be given if the proteins remain low. The hematocrit and the specific gravity of the blood are reliable indicators of the total amount of fluid. Five per cent glucose added to the salt solution or in distilled water begins the nutritional improvement.

When the intravenous therapy is under way, attention must be turned to the distention. Expulsion of the bowel contents depends on a functioning bowel wall and an avenue of exit. In any type of obstruction, except early partial obstruction or early paralytic ileus with some motor activity still present, there is no possibility of utilizing the normal route of exit. In these exceptional cases good results may be obtained by using

drugs, hot packs, enemas and rectal tubes. Morphine is frequently employed and is very popular. Probably its only function is to make the patient temporarily comfortable and reduce aerophagia. Its action is an initial duodenal spasm followed by a general relaxation of the small bowel that may last two or three hours.[12] Pitressin may be effectively used in a small group of cases. Its action varies at different levels of the bowel, but the end result is invariably an increase in the forward propulsion of the intestinal contents.[13] Inhalation of 98 per cent oxygen may be of some help by increasing the gradient of gaseous exchange to aid in the absorption of swallowed air. Obviously it is of no use when the absorptive surface has been damaged.

The most obvious and successful method of relieving the distention is the actual removal of the fluid and gas by suction. Wangensteen[5] recognized this and used gastric and duodenal suction in the treatment of these cases. With the development of intestinal intubation by Miller and Abbott[14] in 1934 and the application of this principle in obstruction by Abbott and Johnston,[7] an even more effective method was placed within reach. This procedure depends on the ability of the obstructed intestine to propel a large bolus, in contrast to its inability to pass a small one, and the restoration of muscular activity by decompression of the distended bowel. Two tubes are necessary or a tube with two lumens, one connecting with a distensible rubber balloon and the other available for aspirating intestinal contents. If such a tube is placed in the distal duodenum, the balloon inflated, and suction applied, it will proceed to the point of obstruction, or in the paralytic type will be expelled by rectum. As each segment of bowel is decompressed, its motor activity returns and the tube is carried to the adjoining segment. This method has many advantages. The loss of fluid into the bowel lumen can be accurately measured and a like volume replaced. The obstructive lesion can be definitely located and in many cases its nature can be determined. It is possible to feed the patient, withdraw the residue, and thus maintain nutrition over an almost indefinite period of time. The last makes the time of operation, if at all necessary, largely elective. As the tube advances the patient may be fed, progressively, clear fluids without milk, hard toast, cream cheese, junkets, jellies, custards, coffee, sugar, butter, hard-boiled eggs, rice, puréed vegetables and ground meat. It is a simple matter to have the patient receive 1500 calories daily on such a low-residue diet. Vitamin B complex and 75 to 100 mg. daily of vitamin C are added, and enteric-coated salt tablets may be given to supply at least 5 gm. for each liter of intestinal contents removed.

Technic of Intubation

The technical difficulty encountered by many in passing the tube has been the greatest objection to this method of decompression. It is true that the procedure is time-consuming and works a good deal better in the hands of a person who has had adequate training in its use. Also, there has been some misunderstanding concerning the time involved in placing the tube in the small bowel.

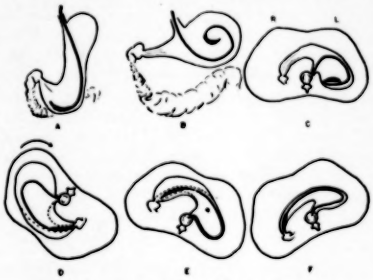

FIGURE 1. *Intubation Technic.*

A shows the usual course of the tube in the stomach of a healthy subject, and B, the change in the shape of the stomach and the resultant course of the tube in an obstructed patient. C represents a cross-section at the xyphoid level showing coiling of the tube in the fundus. D indicates the proper position of the patient during the injection of 300 cc. of air into the stomach; the tube then drops to the pylorus, but aspiration of the air allows the stomach to contract about the tube (dotted lines) and cut off the suction. E shows the direction in which to roll the patient to cause the air in the fundus to shift into a position from which it can be aspirated; the patient should never be rotated in the opposite direction, since the tip will drop out of the pylorus. F indicates the position in which the patient should rest after the stomach has been emptied.

Placing a tube in the stomach is always justified in any circumstance in which immediate operation is not indicated. If after an hour or two of gastric decompression the patient is improving, a longer wait is justified. It may be six to twelve hours before the tube passes into the small bowel, but so long as there is clinical evidence of improvement, both subjectively and objectively, one may wait longer. Operation may, however, be indicated at any time during the course of an intubation, and this is a problem that requires nice clinical judgment.

The Miller–Abbott tube is double-barreled and the two lumens are separated by a thin rubber partition. One lumen connects with a rubber balloon and the other is available for suction through

the tip and openings proximal to the balloon. The tube is marked at the 60-cm. and 75-cm. levels from the tip and at 15-cm. levels thereafter.

The first step is to anesthetize the nose, which is done with a long cotton swab soaked with 2 per cent Pontocaine. This is passed through the nares until its tip rests on the posterior pharyngeal wall. While this is left in place the tube should be tested for leaks or obstructions, and the amount of air necessary for the desired inflation of the balloon should be noted. The tube is then well lubricated with a water-soluble gel. The swab is removed from the nose, and the tube is passed into the stomach. Suction is applied and the stomach emptied.

The patient is placed on his right side and the stomach is distended with 200 to 300 cc. of air. This step is necessary because of the reflex contraction of the antrum of the stomach found in cases of intestinal obstruction. The contraction converts the distal stomach into a narrow muscular organ and leaves a distended fundus into which

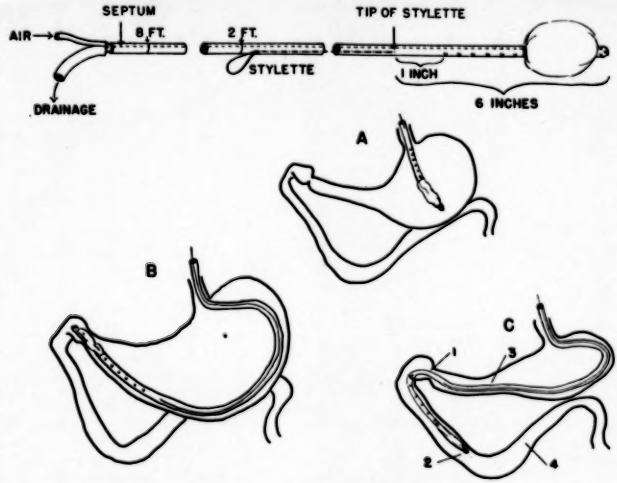

FIGURE 2. *Technic of Using a Stylet in Passing a Miller–Abbott Tube (Abbott[15]).*

Pierce the wall of the aspirating lumen of the tube at the 50-cm. (2-ft.) mark with a length of 0.4-mm. (0.016-in.), specially straightened, stainless steel vom Hofe leader wire, and advance the tip of the wire to a point 2.5 cm. (1 in.) above the most proximal aspirating hole in the tube. Bend a loop in the other end of the wire so that the tip cannot advance distally. The terminal 15 cm. (6 in.) of the Miller–Abbott tube will then contain no wire. Pass the tube in the usual manner to the position shown in A. *With a temporary adhesive-tape patch over the point at which the stylet pierces the tube wall, inject 300 cc. of air into the stomach and advance the tube until it lies along the greater curvature, as in* B. *Hold the tube at the patient's nose to prevent its slipping out, and apply suction to remove the air. The stomach contracts, as in* C, *squeezing the tip of the tube ahead from position* 1 *to* 2. *The tip of the stylet then lies at* 1. *The antral spasm, with concentric contraction distal to* 3, *prevents the terminal 15 cm. (6 in.) from coiling, and the stylet prevents coiling of the tube proximal to the antrum, where the stomach is more flaccid. Draw back the tip of the stylet from* 1 *to* 3, *and by gentle, steady pressure on the tube at the nose advance the tip from* 2 *to* 4. *Withdraw the stylet, patch the hole through which it was introduced with thin rubber and, having inflated the balloon with 20 cc. of air, proceed as usual.*

the tube readily coils. Distention of the stomach with air irons out the antral contraction and allows passage of the tube along the greater curvature to the pylorus. Reference to Figure 1 will make this clear. Enough slack is placed in the stomach to allow the tip to penetrate well into the duodenum. The patient is left in this position, suction is maintained, and clear fluids without milk are allowed until the tip passes into the duodenum. This is most readily identified by injecting air into the balloon. If the balloon distends with little or no resistance, it is in the stomach. A strong, steady resistance means that the balloon is at the pylorus. The resistance in the duodenum comes and goes irregularly, independent of respirations. When this desired resistance is noted, more tubing (several centimeters) is passed through the nose. After a fifteen-minute wait, the desired amount of air is injected into the balloon and the inflation tip is clamped. The tube is then passed at the rate of about 15 cm. an hour. It is well to check the progress by daily x-ray films of the abdomen.

Frequently the time factor is important and passage of the tube under direct vision with the fluoroscope is desirable. The tube may often be placed in the duodenum within a few minutes by this method, following the same steps as above. Another recently developed aid in the rapid passage of the tube is the stylet technic of Abbott,[15] illustrated in Figure 2.

Several difficulties are frequently encountered in the passage of the tube. Duodenal spasm from an injection of morphine is a common obstacle. This usually wears off within an hour, and until such time as it disappears only gastric suction may be obtained. Occasionally reflex duodenal spasm is encountered, in which event nitroglycerin or gastric washes with a warm solution of sodium bicarbonate may be effective in reducing it. Solid food in the stomach will prevent the passage of the tube until removed. Ascites makes passage of the tube difficult and fluoroscopic aid or the use of the stylet is usually required. Multiple obstructions such as are seen in adhesive types of peritonitis account for the majority of complete failures.

Once the tube is in place, several steps may be taken for the comfort of the patient. The use of an anesthetic lubricant for the tube is advisable. Five-tenths per cent ephedrine in saline r. se drops will relieve the nasal edema. Hot saline gargles and throat lozenges will sooth the throat.

The suction lumen should be irrigated with 20 cc. of saline solution every two hours. Obstruction by particles of food is not common and can readily be removed by alternate suction and compression with a syringe. A coil of tube in the stomach will occasionally kink the tube enough to close both lumens. This can be recognized by the inability to get air in and out of the balloon, as well as the cessation of drainage from the suction side. Withdrawing a small length of tubing from the nose will release the obstruction.

The tube may be left in place safely for many days and even weeks. The possibility of erosion of the posterior pharynx or esophagus must be kept in mind, however. I have never seen such an erosion and am inclined to agree with Abbott that it is probably produced by too rapid removal of the tube. The removal must be accomplished slowly and intermittently, since pleating of the intestine will occur. Considerable pressure may be exerted on the bowel wall in this manner. For the same reason, the tube should never be taped or held in a constant position while air is still in the balloon. The pressure of the pleated bowel in such a case has been known to cause multiple perforations.

Summary

Intestinal obstruction without strangulation may not be a surgical emergency. Nonsurgical methods of decompression done in conjunction with surgery have reduced the mortality from 30 to 10 per cent or less.

Distention of the bowel is recognized as the factor initiating the physiologic and chemical changes that occur in intestinal obstruction. The intelligent use of intravenous fluids and transfusions is effective in combating these changes temporarily.

Relief of the bowel distention is of primary importance and is best accomplished by intestinal intubation. The advantages of this method are several. Accurate measurement of fluid and electrolyte loss into the bowel lumen is possible. The obstructive lesion may be definitely located and in many cases its nature determined. Most important is the fact that, since the intubated patient may be fed a low-residue diet, nutrition may be maintained almost indefinitely, making the time of operation, if necessary at all, elective.

In any case of intestinal obstruction the decision is not whether it should be treated medically or surgically, but whether it should be treated medically or surgically at that particular time. This is a decision that must be reached at each visit to the patient.

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MEDICAL PROGRESS

ALIMENTARY-TRACT DISTURBANCES SECONDARY TO EMOTIONAL OR PHYSICAL TRAUMA

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DIGESTIVE disturbances incidental to occupational or traumatic episodes occur during the present war emergency with sufficient frequency to warrant clinical interest. Aside from their strictly medicolegal and industrial aspects, at the present time it may be of importance to enumerate and comment on the types of disorders that may be encountered as direct or indirect results of war conditions. Alterations in living and dietary habits, necessary limitations in articles of food imposed by war rationing and the stress and strain associated with the unusual degree of pressure existing today may well be expected to exaggerate and bring into sharp relief many of the alimentary disorders commonly encountered in normal civilian life.

Under ordinary circumstances, any survey of a given industrial group invariably reveals a serious loss of working hours because of so-called "functional disease." Thus a recent report by Bell,[1] of the Workmen's Compensation Board of Ontario, estimates the time lost from industrial injury due to functional disease as 20 per cent of the total—a tremendous figure. Much of this lost time might well have been saved, as Bell points out, by the proper treatment of patients and the education of the laity. In a single industry, Dignam,[2] for example, states that of fifty-eight claims, totaling 1754 days lost in one year, 20 per cent were due to disorders of the gastrointestinal system. Many of these difficulties are obviously due to poor working or living conditions associated with a given industry, fatigue, anxiety, faulty dietary habits and the like.

A more concrete picture can be obtained of the present situation by scrutinizing the numerous reports that have now begun to appear emanating from the military services of the countries at war. Early in the war it was noticed that indigestion appeared to present the greatest medical problem among the sick invalided home from the British Expeditionary Force in France. During the period between the dispatch of this unit to France and the end of April, 1940, one eighth of all sick men evacuated home had a primary diagnosis of gastric or duodenal disease, and of these more than 80 per cent showed gross organic disease, such as peptic ulcer of the stomach or duodenum. It is of interest that practically all subsequent reports have confirmed the original early statement of various English observers that the vast majority of men in military service complaining of gastrointestinal symptoms had such symptoms prior to induction into service.[3] The incidence of ulcer in the British Expeditionary Force was in sharp contrast to figures obtained in the last war, where indigestion, inflammation and ulcers of the stomach were in a position somewhere between ninth and twelfth places in numerical importance. That this increase in gastrointestinal disturbances was not limited to the military services was evidenced by Willcox,[4] who noted a striking incidence of digestive disorders in 1939 in London bus drivers. An interesting commentary by Mahlo[5] in 1940 stated that soldiers in the German Army suffering from gastroduodenal ulcers lost their symptoms in

The articles in the medical-progress series of 1941 have been published in book form (*Medical Progress Annual.* Volume III. 678 pp. Springfield, Illinois: Charles C Thomas Company, 1942. $5.00).

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the Polish campaign, while under the excitement and external emotional explosions incident to actual combat. He emphasized that these same soldiers when transferred to a quiet position on the western front suffered from a reappearance of ulcer symptoms.

Graham,[6] in 1941, commented on the striking incidence of gastrointestinal complaints in military hospitals, the percentage of digestive disorders in two hospitals totaling about one third of the entire number of admissions. In these hospitals, where cases had been sent for diagnostic study, two thirds of the patients, who were drawn from the British Navy, Army, Air Force and women's auxiliary services, had ulcers. The ratio of duodenal ulcer to gastric ulcer was approximately 5:1, but other authors have reported a greater incidence of gastric lesions. In the British Navy, Allison and Thomas[7] also point out the disproportionate rise in the incidence of gastric and duodenal ulcers, and again the point is made that less than 10 per cent of all subjects with ulcer develop their initial symptoms after entry into military service. The majority of writers have agreed that the most significant contributing factors are lack of a suitable diet and psychologic disturbances incident to military service. Frequently symptoms that have been controlled under conditions of civilian life reappear when men are forced to live on unregulated diets and are placed on active duty. A report by Wade,[8] also based on observations made in the British Navy, notes that, during the first year of the war, relief of symptoms in patients with long-standing histories of peptic ulcer was not possible while they remained on active duty. In March, 1941, it was decided that men with proved ulcer and those with a recurrence of symptoms and a definite past history of gastroduodenal operation, perforation or hematemesis were to be invalided from the service. The only exceptions were a few officers or keymen who could be used for limited duty. Of 1000 cases studied, it is of extreme interest to note that the incidence of "dyspepsia" among men in active service in the Navy, as compared with those in the reserves and "hostilities only" personnel, was in the ratio of 1:4. Such a figure suggests the effects of stress and strain and abnormal living conditions incident to noncombat duty, as well as those encountered during actual fighting. In the group of 1000 patients who formed the basis of his study, it is of interest that 20 of those with ulcer had had symptoms before the age of fifteen, and as noted above, only about 10 per cent dated the onset of symptoms from entrance into the service.

For comparison, a report of Chamberlin[9] on conditions existing in the Army of the United States is of interest. His figures represent the results of the weeding-out process in the Army, beginning with the first day of the draft in October, 1940. The statistics are based on admissions to the Lawson General Hospital in Atlanta, Georgia, and the Tilton General Hospital at Fort Dix, New Jersey. Between August, 1941, and May, 1942, of approximately 3500 admissions, half were classified as medical patients, and of these nearly one fifth had gastrointestinal complaints. A third of the patients suffering from digestive disorders had peptic ulcer, the ratio of duodenal ulcer to gastric ulcer being 32:1. As already noted, in Britain the incidence of gastric ulcer has apparently been much higher, although the discrepancy with Chamberlin's figures may be more apparent than real, inasmuch as facilities for adequate x-ray investigation in the British medical units were not entirely satisfactory. A more recent article by Flood[10] on the ulcer problem as observed at Fort Meade, Maryland, is entirely in accord with that of Chamberlin and gives an equally high incidence of duodenal ulcer — 71 cases out of a total of 75, the remaining 4 being gastric ulcer. A comment by Flood is particularly pertinent to the military situation as it exists at present. Under careful routine treatment, two thirds of the service group with active ulcers continued to have symptoms for a period greater than two weeks, whereas in a group of 225 civilian ulcer patients previously treated by this author, similar treatment secured complete symptomatic relief in two thirds of the patients well within the two-week period.

An article by Riley[11] bears particularly on the effect of wartime conditions on the civilian population, especially under conditions of total warfare. He quotes figures from the Royal Victoria Infirmary in Newcastle. In 1939 there were 200 perforated peptic ulcers; in 1940, 222; and in 1941 251. Although the effect of air raids was less obvious in Newcastle than in some other large British cities that were severely bombed, these figures undoubtedly represent the increased strain of living under intense war conditions. As Riley points out, real anxiety (not trivial cares) aggravates ulcer symptoms, and malnutrition probably plays a part, both factors being intensified by the war. In spite of the statements of the British government that the health of the nation is better than ever before, he finds evidence that digestive disorders and perforations of peptic ulcers are on the increase. He advocates, whenever possible, shorter working hours and improved canteen facilities as aids in controlling these conditions.

Dunn[12] notes the marked increase in the figures for gastric disturbances encountered in the present war over those recorded during World

War I, and stresses the importance of emotional factors arising from the war situation. He suggests that the digestive disturbances growing out of the present emergency are those of psychosomatic disorders, in contrast to the neurotic manifestations (anxiety states and conversion hysteria) that were much more frequent in the last war. He states that the frequency of gastroduodenal disorders appears in part to be related to inadequate screening of recruits with a history of ulcer or with a markedly neurotic personality structure, and in part to prolonged tension in men mobilized for war but with little opportunity for the release of emotions in combatant activity, a thesis that would appear to have some confirmation from the opinions noted above.[5, 8, 11]

To the effects of what may be called emotional trauma of the stress and strain of total war in producing alimentary-tract disorders may be added the results of physical trauma connected directly or indirectly with the conditions encountered in the present conflict. Acute ulcers of the stomach or duodenum, the so-called Curling's ulcer following extensive burns, have been known since they were originally described by Dupuytren in 1832. The total number of such ulcers recorded in the literature is surprisingly small. Until 1938, approximately 110 cases of such acute ulceration following cutaneous burns were to be found in the literature. An excellent case description and a complete survey of the entire literature on the subject are to be found in an article by Keely.[13] In his case, vomiting occurred on the fourth and sixth hospital days, and at this time fluoroscopic examination revealed a duodenal deformity, although there had been no preceding gastrointestinal symptoms. Although Tenery[14] was able to show no marked changes in the blood-electrolyte pattern in patients suffering from extensive cutaneous burns, his report of the autopsy findings in one of his 3 fatal cases is of interest in that it showed a mild, terminal, diffuse hemorrhagic gastritis. Curling's original description included ulcers of the duodenum only, associated with "violent congestion, severe gastroenteritis and more or less vivid red patches and deep ulceration." In Tenery's 3 fatal cases, it is of interest to note that all showed marked liver changes. An experimental investigation of Necheles and Olson[15] represents one of the most valuable contributions to an understanding of this particular type of gastrointestinal trauma. These authors noted the effect of cutaneous burns on gastrointestinal secretion and motility. It was known that following shock of any kind, petechial hemorrhages, congestion of the mucous membrane and erosions or superficial ulcers may be found in the stomach, duodenum or intestinal tract. Necheles and Olson found that in anesthetized dogs extensive burns were associated with a diminution of the salivary, biliary and pancreatic secretions. Gastric secretion and gastric acidity increased in a number of experiments, and in one animal a fresh prepyloric ulcer was found. A considerable increase was noted in intra-abdominal pressure and in gastric motility. The increase in motility was particularly noticeable in the pyloric antrum and began immediately after burning had occurred. The authors believe that these findings throw some light on the pathogenesis of Curling's ulcer. Although this type of ulcer becomes clinically apparent only after a considerable delay following the burn, it can be assumed that the local acute disease begins to develop at a much earlier date.

In this connection, it is of interest to comment on the findings noted among some of the victims of the recent Cocoanut Grove disaster.* Although none of the patients admitted to the Massachusetts General Hospital had symptoms of ulcer, 56 per cent of those whose stools were examined showed evidence of bleeding. The reports of 3 cases that came to autopsy are of interest. In one person, who was dead on arrival at the hospital, the entire length of the duodenum showed extensive submucosal hemorrhage, which was dark pink in color and took the form of circular streaks following the lines of the mucosal folds. The jejunum was negative, but the last 25 cm. of the ileum showed extensive submucosal hemorrhages, which were not so severe as those noted in the duodenum. Microscopic examination of the duodenum revealed that the vessels of the mucosa and submucosa were maximally dilated and formed the scattered petechial hemorrhages noted in the mucosa. In the other patients, dying fifty-three hours and sixty-three hours after the disaster, marked injection or minute petechiae were noted in the mucosa of the duodenum. In addition, numerous red, punctate areas, ranging from 0.5 to 5.0 mm. in diameter, were noted in the gastric mucosa. They were more frequent near the cardiac end of the stomach. No true erosions were found. Because of the high incidence of serious burns associated with modern warfare, it is obvious that these findings are significant.

Although not implicated in the hazards of total warfare, mention should be made of intestinal injury as a result of intensive radiation to neighboring structures. This has been commented on by various observers, but its importance cannot be overestimated because of the crippling and dangerous sequelae that may follow heavy irradiation, particularly that of pelvic tumors. A complete study of the pathologic changes occurring in radiation lesions in the gastrointestinal tract has been

*Management of the Cocoanut Grove burns at the Massachusetts General Hospital. *Ann. Surg.* (in press).

made by Warren and Friedman.[16] Thirty-eight cases were selected, including ulcers, fistulas and strictures, many of which developed at sites distant from neoplastic tissue, but some of which occurred at the site of a partially or completely destroyed tumor. The bowel wall was usually thickened and indurated, with an opaque serosa and prominent telangiectasia. Similar mesenteric changes were also noted. The bowel mucosa was the seat of frequent superficial to deep ulcerations, with at times pronounced necrosis and massive gangrene. Stenosis was sometimes due to diffuse sclerosis with general constriction of a segment. Experimental observations on rabbits by the same authors[17] confirmed the identity of the experimental lesions with those noted after clinical radiation. That such lesions may occasionally cause a perforation of the intestine is indicated in a report by Parks[18] of a case in which the adjacent sigmoid became ulcerated and necrotic following radiation of the cervix for a squamous-cell cancer. In this connection, it is of some interest to point out the observations made by K'O, Tu and Chan,[19] who were interested in the possible unfavorable effects that might occur with the administration of iron during irradiation therapy. In animal experiments, it was found that ferrous sulfate was definitely valuable in the treatment of anemia as a result of chronic blood loss and caused no harmful effects in the animals undergoing irradiation. When ferrous citrate was given under similar circumstances, radiation of the abdomen was associated with gross intestinal lesions similar to those described by Warren and Friedman.

Direct injury to the gastrointestinal tract may be caused by the ingestion of irritating substances or of foreign bodies, by the trauma incident to endoscopic examination for diagnostic purposes, by penetration associated with therapeutic measures applied to neighboring organs or by other means. The injury to the buccal, esophageal and gastric mucous membrane following the ingestion of lye and similar substances owing to their direct caustic action is well known, as is the effect of swallowing foreign bodies, such as fishbones. In the case of foreign bodies, including bone spicules, wood splinters, pins and the like, the commonest sequel is that of intestinal perforation involving the lower ileum and cecum. Not infrequently perforation occurs in the appendix or in a Meckel's diverticulum. The incidence of such lesions and the variations encountered are thoroughly discussed by MacManus[20] and by Bunch and his associates.[21] Some unusual cases of this character are recorded by Hill,[22] who reports 4 cases of traumatic hemorrhage of the intestinal tract occurring on board an American naval vessel. In each case, the illness was characterized by the sudden onset of dizziness, weakness and collapse, without a recognized cause. Eventually an explanation was obtained in the discovery of small, sharp pieces of tin in the food served to the sailors. At the same time, a defective can opener was discovered that dropped bits of metal into the food. Discovery of the cause was delayed because of the poor lighting incident to numerous blackouts on the ship. A somewhat similar and obscure cause of hematemesis is found in a report by Bannister.[23] The point of particular interest is the fact that the foreign bodies, which in this case were ordinary steel needles, were found in the pancreas, the splenic artery and the hepatic end of the transverse colon, to which they had penetrated by perforating the duodenum. An important recent cause for gastric irritation directly associated with the war is cadmium, a metal recently used instead of tin and other valuable war metals to plate cooking utensils. Although cognizance has been taken by some public-health agencies of this form of food poisoning, which results in violent, acute gastritis, it is important to recognize that cadmium plating of food utensils may be encountered and may prove a source of serious poisoning. The danger results from the solubility of this metal plating in weak acids, such as acetic acid and other organic acids commonly found in food. Their action on the plating results in the formation of organic cadmium salts that are extremely toxic when combined with the hydrochloric acid of the gastric juice. The report of Frant and Kleeman[24] covers adequately this particular hazard to the gastrointestinal tract.

Actual rupture of the stomach following the ingestion of common substances, such as soda bicarbonate, may occur. Such a case is reported by Lemmon and Paschal,[25] and although the occurrence is not frequent, their report is of interest. The patient, after taking several drinks and a heavy meal, took a large dose of bicarbonate of soda to relieve the heavy feeling in his stomach. This was immediately followed by sudden, severe, generalized abdominal pain with subsequent shock. Death resulted from toxemia and peritonitis following rupture of the viscus.

Because of the frequent use of endoscopy as a diagnostic aid, it is pertinent to mention the dangers inherent in the various endoscopic methods employed. The necessity for these measures is obviously not dependent on the war, but the need for them will undoubtedly be increased because of various digestive-tract disturbances incident to industrial and war conditions. The diagnostic value of peritoneoscopy is well established, particularly in evaluating obscure hepatic disorders

and pelvic tumors. In spite of the fact that the number of serious accidents is relatively few, peritoneoscopy does rarely result in perforation of the bowel in those cases where it is employed in the presence of a plastic peritonitis that has not previously been suspected. The difficulty that exists at times in differentiating between ascites and distended, fixed loops of bowel is such that similar accidents are not altogether avoidable, but the risk entailed in the use of this procedure must be understood and accepted. Ruddock,[26] Benedict,[27] Thieme[28] and Garrey[29] report only minor accidents in the use of the peritoneoscope, and in a more recent survey Benedict[30] has encountered, in an attempt to diagnose extremely obscure cases, only 4 cases out of a total of nearly 500 peritoneoscopies in which unavoidable penetration of the intestine followed the use of the instrument. Several years ago Schindler[31] surveyed the results of over 22,000 gastroscopies performed by sixty examiners and found 1 fatal accident resulting from perforation of the hypopharynx. Nine other cases with complications, which were not fatal, were reported, 8 of them having perforation of the gastric wall and 1 perforation of the jejunum. In 5 cases, perforations of the stomach could be attributed to the friction of a rubber-sponge tip, which has now been discarded. All the gastric perforations were found in the upper portion of the posterior wall of the stomach. Schiff and Shapiro[32] reported 3 accidents following 1300 gastroscopies, 1 of which was presumptive and 2 were proved. In the proved cases, perforation occurred at the time the instrument was introduced and produced no immediate pain. As noted by Schindler, the perforations were high on the posterior wall of the stomach. One of these patients died seventy-two hours after the accident. Schindler states that a diagnosis of gastric perforation at gastroscopy may be made prior to the onset of pain if the stomach remains collapsed in spite of air inflation. An additional case is that reported by Touroff,[33] whose patient suffered a perforation of the cervical portion of the esophagus with a flexible gastroscope. Perforation was immediately diagnosed by the appearance of a small amount of blood in the mouth when only a portion of the instrument had been introduced, although without apparent difficulty. The instrument was immediately withdrawn, and a few moments later the patient began to complain of pain in the right side of the neck, with associated tenderness and crepitation. In spite of this accident, the patient survived and is now well. Because of the fact that esophagoscopy is usually performed in the presence of serious disease, such as carcinoma, it is to be expected that occasional accidents may be encountered even when the most careful technic is employed. Benedict[34] reports 6 cases of perforation, in only 1 of which it was fatal, in the course of esophagoscopies performed on 340 patients. Similar penetrating lesions of the rectum and sigmoid have been produced by sigmoidoscopy, with or without inflation and with or without the attendant use of a biopsy forceps. Although serious danger to the alimentary tract incident to the use of endoscopic methods is not great, it must be emphasized that in the presence of disease processes the greatest care should be used and manipulation should be done only under the most favorable circumstances.

A somewhat similar hazard is occasionally encountered in uterine curettage; however, fatalities due to perforation of the uterus and the neighboring bowel are, fortunately, rare when the operative procedure is carried out by a competent person. Probably the most frequent source of such a danger is associated with criminal abortion, frequently with fatal results. Numerous reports can be found in the literature, but the subject is sufficiently well recognized to require no further comment.

Rupture of the colon by compressed air is an unfortunate but not uncommon accident. The rupture is produced by a jet of compressed air that readily passes through cloth and enters the anus, even when the jet is not accurately directed at it. Such a gaseous jet is elastic and expands in all directions, adapting itself to surroundings. Perforation occurs usually at the rectosigmoid angle. Rarely the serous and muscular coats of the bowel only are torn. A diagnosis may be made on the basis of the history alone or on physical signs, the most important of which are the presence of abdominal distention, the absence of liver dullness and embarrassed respiration. Brown and Dwinelle[35] report 3 such cases and review 6 others found in the literature.

Damage to the stomach or bowel by penetrating injuries is not new, and represents a not uncommon type of accident encountered in civilian life. It is of particular significance at the present moment because of the obvious danger from such penetrating wounds as may occur in war injuries due to bayonet, bullet and shell fragments, and also to penetration of the hollow viscera resulting from a fall from a considerable height and impalement on a sharp object. Even where multiple lacerations of the digestive tract have resulted, with modern methods of surgery and the timely use of the sulfonamides many favorable recoveries may be expected.[36]

Of less obvious but equally great significance are the indirect injuries to the gastrointestinal tract

resulting from nonpenetrating trauma. Prior to the war, numerous cases of perforation of the digestive tract at various levels following such trauma have been recorded. Such perforations have resulted from automobile and industrial accidents, kicks from animals and so forth. The esophagus has only rarely been ruptured following a blow on the abdomen, — a case is reported by Aldrich and Anspach,[37] — but perforations of the duodenum, jejunum and intestinal tract are not uncommon. Counseller and McCormack[38] reviewed the literature and state that in subcutaneous abdominal injury the small intestine was the site of rupture in 90 per cent of reported cases, the jejunum and ileum equally forming together 80 per cent of the entire group. Such accidents occur more frequently in adults than in infants and children, although the latter have occasionally suffered such trauma when heavy objects fell on the abdomen. Frost and Guy[39] report retroperitoneal perforations of the duodenum, without other intra-abdominal injury, in an adult who fell on the right side, striking the right upper quadrant of the abdominal wall against a blunt object. Poer and Woliver[40] studied the cause of injury in nearly 1500 cases and showed that many of the injuries were produced by a relatively slight blow to the abdomen. These authors point out that the extreme fragility of the intestine was known to Aristotle, and quote him as saying that "a slight blow will cause rupture to the intestine without injury to the skin." Three chief mechanisms are mentioned that may result in intestinal and mesenteric injury due to nonpenetrating abdominal trauma: first and most frequent, a crushing injury in which an external force compresses the bowel against the spine or pelvic bones; second, a tearing injury that may result from a violent force applied at a tangent to the body; finally, severe bruising injuries that increase the normal pull on an organ. The existence of a hernia obviously may be a predisposing cause of a traumatic rupture of the intestine. A significant point is that distention of the intestine with food or fluid frequently contributes to the likelihood of rupture following a blow from a blunt object. From the medicolegal point of view, it is essential that symptoms shall appear immediately following trauma. That an existing peptic ulcer may be caused to bleed by trauma of this sort is not surprising, and such cases have been recorded by numerous observers. In relation to the present war, it is interesting to note that severe perforations or hemorrhages in ulcer patients have occurred during flight. Under flying conditions, it is conceivable that various factors may become operative, including anoxia, compression and trauma, such as may occur in airplane accidents or from sudden diving at high speed with the subsequent pull-out, in addition to the more obvious effects of nervous strain and tension incidental to combat flying at high altitudes. Several interesting reports of this nature are to be found in the war literature.[36, 41, 42]

Traumatic peptic ulcer falls into a different category, however, and not only has interesting medicolegal aspects as encountered in civilian life, but occasionally occurs during combat conditions. A sufficient number of cases have been recorded in recent years since Potain's original description of a traumatic ulcer in 1866 to make it highly probable that acute ulcers of the stomach or duodenum may occur solely as the result of sudden trauma. The question of the relation between trauma and peptic ulcer frequently arises in regard to accident insurance and workmen's compensation. The German State Insurance Office has denied that such a relation can exist. A history of trauma is obtained in not more than 2 per cent of all peptic ulcers, according to Kellogg and Kellogg,[43] who have reviewed the subject exhaustively. When trauma is claimed as the cause of ulcer, the implication usually holds that a blunt force directed to the epigastrium without direct penetration of abdominal and visceral parietes has resulted in variable degrees of injury to the epigastric wall and to the underlying viscera. Eusterman and Mayo[44] claim that external violence may be great enough to produce multiple acute gastric ulcers, or a less severe injury may be followed promptly by the onset of symptoms of a peptic ulcer that was previously nonexistent. They cite the four postulates of Liniger and Molineus as the medicolegal considerations necessary to warrant compensation for traumatic ulcer. These are: adequate proof of absence of gastric disease before the accident; injury sufficient to cause the lesion and trauma localized in the epigastrium; symptoms that immediately follow the accident; and the continuation of symptoms and signs pointing to a gastric or duodenal ulcer. According to Guy,[45] who cites voluminous foreign literature, and a few American authors, in the majority of cases the trauma must be sufficient to cause some signs of hemorrhage into the lumen of the stomach or bowel. Although the medicolegal aspects of this particular problem are of the greatest interest, it is important to remember that traumatic ulcers are likely to occur, and a careful watch should be kept for such unusual findings in the present war. It seems likely that the acute trauma incident to mechanized warfare may well produce a fair number of such cases.

Another type of injury secondary to nonpenetrating abdominal trauma is not uncommonly en-

countered in civilian practice and is to be expected as a result of war injuries. This is traumatic diaphragmatic hernia following concussion or a severe blow to the abdomen by a hard object. Such herniations may occur on the right or left side of the diaphragm. With an already existing paraesophageal hernia, it is to be expected that such accidents will not be uncommon. Numerous cases were reported in the last war, either with or without penetrating wounds. Much more commonly one encounters traumatic inguinal hernias, which frequently form the basis of long and costly litigation in relation to industrial medicine and workmen's-compensation cases.

A much more controversial subject is traumatic appendicitis. A large number of such cases have been reported in the literature as a result of severe falls or blows involving the abdominal wall. The forces necessary to cause traumatic medicolegal appendicitis apparently may be internal, external or both combined. As in traumatic ulcer, certain postulates are necessary for this diagnosis, and Shutkin and Wetzler[46] outline the following: there must be absolute freedom from complaints of nausea, vomiting or abdominal tenderness preceding trauma; direct trauma must be severe and forcible involving directly the abdominal wall, especially the right half; indirect trauma (from a fall or strain) must be violent, acute and unexpected; symptoms must appear immediately after trauma, indicating localization in the right lower quadrant of the abdomen; symptoms must be persistent and progressive and must assume the clinical symptoms and signs of clinical appendicitis; the pathological examination of the appendix must indicate a suppurative, destructive and necrotic process. Compensation for traumatic appendicitis has been awarded in numerous courts in cases in which rupture or damage to the appendix with perforation has been found following an accident. Traumatic appendicitis, however interesting, must be extremely rare, and such a diagnosis is tenable only after an extremely careful review of all the facts. I have recently heard of one highly suggestive case of this condition. A previously healthy young adult experienced a sudden onset of abdominal pain immediately after an airplane dive at high speed. Emergency operation revealed an acute perforated appendix. If such a case can be accepted as an authentic example, it is probable that this also constitutes one of the rare hazards of war aviation.

Of greater numerical importance and of greater interest at the present moment are the concussion injuries to the gastrointestinal tract resulting from blasting or bombing. Such injuries are particularly well described in excellent and comprehensive articles by Gordon-Taylor[36] and by Breden and his associates.[47] Although the abdominal viscera appear to be less sensitive to blasts than are the lungs, any portion of the gastrointestinal tract may exhibit pathologic changes consisting of hemorrhage, varying from punctiform spots under the serosa to large annular extravasations, and occasionally rupture of the bowel. The proclivity of the small bowel to exhibit lesions due to blasts is not much less than that of the large bowel; the stomach is seldom affected. Extensive blood infiltration of the mesentery with extension under the serous coat of the bowel has also been noted. Paralytic ileus has been observed as an accompaniment of blast injuries to the abdomen. One of the striking results of nonpenetrating trauma to the abdominal cavity secondary to concussion is that of acute dilatation of the stomach. Gordon-Taylor mentions several such cases. It occasionally occurs some days after concussion and may have a fatal ending. A striking example of blast trauma may be noted, the result of a "near-miss" bomb. The patient entered the hospital in considerable abdominal pain, but examination revealed no external bruise or abrasion. Because of abdominal tenderness and rigidity, operation was performed, revealing a large subserous hematoma that had spread under the duodenum from the pyloric end of the stomach and had infiltrated into the layers of the transverse mesocolon. The various coats of the duodenum had become separated, requiring complete division. In passing, it may be pertinent to point out that under such circumstances abdominal rigidity does not of necessity betoken involvement of the subphrenic viscera. It is well known that injuries of the pleura or lung, especially if occurring in proximity to the diaphragm, may occasion abdominal rigidity and arouse suspicion of an abdominal lesion.

Extremely strenuous muscular effort may result in subparietal rupture of the intestinal tract. This is most frequently associated with a pre-existing hernia. The precipitating accident is frequently caused by the lifting of a heavy weight or pulling against great resistance. Many such cases have been reported by Wilensky and Kaufman[48] and by MacMillan.[49] Where noted, all perforations occurred at or near the antimesenteric border of the involved loop of bowel. Such a type of lesion has an obvious relation not only to war injuries but also to industrial accidents.

An unusual type of intestinal disturbance is that reported by Altemeier and Wadsworth,[50] who record intestinal ileus following a fracture of the ribs. A few such cases have been noted in the literature since the original report by Adams in 1910. Abdominal distention may appear within ten hours

after the injury or may be delayed for several days, and may last for as long as six days. If the possibility of a ruptured intra-abdominal viscus can be ruled out, conservative therapy is indicated. The chief difficulty arises in the differential diagnosis between upper abdominal spasm secondary to an irritation at the lower end of the costal nerves caused by the fracture itself and an irritation of the dorsal sympathetic ganglions and splanchnic nerves with resulting dilatation of the small bowel. The latter, resulting from displacement of the head of a rib or proximal fragment, retropleural edema or hematoma in the upper vertebral area, seems to offer the most logical explanation of such a phenomenon.

Summary

Various types of trauma directly or even fairly indirectly associated with the present period of excessive strain and stress are enumerated and discussed.

In view of the variety of traumatic episodes that may produce organic or functional digestive tract symptoms, attention is called to these important, although scattered, manifestations of gastrointestinal disease.

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CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

CASE 29191

PRESENTATION OF CASE

A sixty-seven-year-old man was referred to the hospital because of nausea and vomiting.

The patient apparently had been well until twelve days prior to admission, when he suddenly felt nauseated after breakfast and vomited thin fluid containing a few flecks of blood. The nausea and vomiting continued, particularly after ingesting solid foods, and he was able to retain only small amounts of milk, water and fruit juices. A gastrointestinal series two days before admission was said to have revealed pyloric obstruction. There was no further bleeding, and no jaundice, diarrhea, constipation, bloody, tarry or acholic stools or weight loss.

The patient's father had died of carcinoma of the stomach. The past history was noncontributory.

Physical examination disclosed a large, heavy-set man who seemed comfortable. The skin and mucous membranes were dry. The heart and lungs were normal. The abdomen was soft; no masses were felt, and no tenderness elicited.

The blood pressure was 100 systolic, 64 diastolic. The temperature was 97°F., the pulse 120, and the respirations 26.

Examination of the blood revealed a hemoglobin of 14 gm. and a white-cell count of 14,000, with 83 per cent neutrophils. The urine was acid, had a specific gravity of 1.016 and showed a + test for albumin; the sediment contained rare hyaline and granular casts and occasional red, white and epithelial cells. The stool was tan and was guaiac negative repeatedly. The blood sugar was 104 mg. per 100 cc., the protein 6.5 gm., the nonprotein nitrogen 104 mg., and the chloride 107.9 milliequiv. per liter. Five days later, after glucose-saline infusions, the nonprotein nitrogen was 30 mg. per 100 cc.

A barium meal passed rapidly through the esophagus; the mucosa appeared normal, and there was no evidence of esophageal varices. The stomach contained a considerable amount of gas and a small residue from a previous barium meal. Very little barium left the stomach during the examination. The mucosal pattern appeared normal. The stomach was rotated on its large axis so that the greater curvature pointed forward, and the pylorus and duodenum lay behind the antrum. Therefore a satisfactory examination of the pyloric sphincter and duodenal bulb was not obtained. In six hours the greater part of the barium mixture was still in the stomach and there was no barium visible in the small bowel. The colon was well filled from the previous barium meal and showed many large diverticulums scattered along its course. The liver did not appear to be enlarged. A second barium meal yielded no additional information.

An operation was performed on the fifteenth hospital day.

DIFFERENTIAL DIAGNOSIS

DR. EDWARD B. BENEDICT: This is essentially a story of pyloric obstruction. The differential diagnosis seems to rest almost entirely on the causes of pyloric obstruction. There are one or two things in the history that might be mentioned. The patient's father died of carcinoma of the stomach. Some families have more cancer than others, but I do not believe one can put any weight on that. He had not lost weight, which is a little bit against carcinoma. The skin was dry; he was obviously dehydrated. That would go with the nonprotein nitrogen of 104 mg., which later became normal after saline infusions.

I shall take up the least likely things first. The first is volvulus, which is only suggested by the fact that the stomach was rotated. If he had volvulus causing pyloric obstruction, he should have had severe pain, tender epigastric swelling and probably more severe vomiting if the obstruction was at the cardiac orifice. That is not this picture at all. Adhesions around the pylorus cause partial obstruction, but I have never seen them cause complete obstruction of this sort. Pressure from extrinsic tumors can cause some pyloric obstruction, but I should not expect it to cause complete obstruction. Carcinoma of the pancreas occasionally invades the wall of the stomach and causes some obstruction, but, again, it is never complete. Gastritis is the commonest disease of the stomach, but I have never seen it cause complete pyloric obstruction.

The commonest causes of obstruction are tumor and ulcer, and of the tumors, cancer is much the commonest. We might consider lymphoma, leiomyoma, leiomyosarcoma and neurofibroma. These are tumors that, in my experience, do not cause complete pyloric obstruction. Benign tumors of the antrum can prolapse through the pylorus into the duodenum and cause partial obstruction. But

that is always intermittent, and the tumor should be easily seen by x-ray. So far as carcinoma goes, the patient is in the proper age group. I should not, however, expect the onset to be quite so sudden, with no preliminary symptoms and no anorexia. He did have some bleeding, which goes with either carcinoma or ulcer. He had had no weight loss. That is possibly against cancer, but the one big thing against cancer of the stomach is the x-ray picture, which showed a normal mucosal pattern, and there is nothing to indicate that the x-ray examination was unsatisfactory except that there was pyloric obstruction. The record does not state that there was fluid in the stomach to obscure the x-ray findings. Gastroscopy might have helped but was not done.

May we see the x-ray films?

DR. RICHARD SCHATZKI: We have films taken on three different dates. This is the preoperative film showing nothing more than the record stated—a stomach with normal mucosal folds so far as one can see them. The spot film shows the same thing. The greater part of the body is visible and appears to be normal. I cannot see the pylorus in any of these films.

DR. BENEDICT: Would you say the examination was unsatisfactory.

DR. SCHATZKI: I think that is impossible to say from the films. Apparently there was some fluid in the stomach but not too much. There is one spot film here that shows just at the tip, where one would expect the pylorus to come out, something that looks like a crater. From the films I have here, I cannot tell whether it is in the stomach, beyond the stomach or at the pylorus. It looks as if there might be a crater in that area, but from the films alone I cannot tell you what it is.

DR. BENEDICT: I am inclined to rule out a tumor of the stomach on the basis of the x-ray findings.

Then we come to ulcer. I have never seen ordinary gastric ulcer cause complete pyloric obstruction. Prepyloric ulcer should be seen by x-ray and should show narrowing of the prepyloric area and a crater. It does not ordinarily cause complete obstruction. An ulcer at the pylorus, which is classified as duodenal because such ulcers do not tend to become malignant and occur a little bit on the duodenal side, can cause complete obstruction after having been silent for many years; and this is often the first symptom. The patient was a little old for that to have occurred, but my feeling is that the most likely diagnosis is either a pyloric or a duodenal ulcer with obstruction.

DR. WILLIAM B. BREED: Could a polyp in the lower part of the stomach or a polyp of the duodenum, with which I am not familiar, have been present that did not show up on the x-ray film and might have caused pyloric obstruction?

DR. BENEDICT: I spoke of a polyp that had prolapsed through the pylorus; but I think that the symptoms would have been intermittent and that the lesion would have shown by x-ray.

DR. SCHATZKI: Inasmuch as we do not see the pylorus in these films it is difficult to discuss that, but I should expect that, with an obstructing polyp, one would have no trouble in demonstrating its surface, even if it had not intussuscepted.

DR. AUGUSTUS ROSE: Why was there no peristalsis in the stomach?

DR. BENEDICT: When there is complete obstruction, the wall gets atonic and peristalsis ceases.

DR. TRACY B. MALLORY: I am sorry Dr. McKittrick is not here to describe the operation and the subsequent course. I shall do the best I can from his notes.

It was decided to explore and do a jejunostomy at the same time. On going into the abdomen, Dr. McKittrick could feel a mass in the region of the first portion of the duodenum. He could not be perfectly sure whether or not it involved the stomach, but it definitely did involve the first portion of the duodenum. He eventually decided to do a gastroenterostomy, and because of certain technical difficulties resulting from a thick and fatty mesentery, it was necessary to do an anterior instead of a posterior gastroenterostomy. In addition to that an enteroenterostomy was done between the two loops of jejunum that were used for the gastroenterostomy. I might stop at that point.

With that description, Dr. Benedict, would you care to go any farther in discussing the probabilities?

DR. BENEDICT: I still think that the diagnosis of ulcer, with an inflammatory mass, is tenable.

DR. MALLORY: What would you say about carcinoma of the duodenum or extension of cancer of the stomach into the duodenum? The duodenum was definitely involved.

DR. BENEDICT: Cancer of the duodenum is extraordinarily rare. We have seen a few cases of cancer of the stomach extending into the duodenum; but a few years ago such a condition was considered to be impossible.

DR. MALLORY: It used to be a dictum in all surgical textbooks that cancer of the stomach never extended beyond the pylorus.

DR. BENEDICT: But you have seen a few cases.

DR. MALLORY: It does quite frequently, if one looks for it with a microscope. One does not often see gross extension, however.

DR. BENEDICT: I should not think that it was terribly likely with complete obstruction. Perhaps I am a bit stubborn, but I prefer to stick to ulcer with an inflammatory mass.

DR. MALLORY: That was Dr. McKittrick's impression at the end of the operation.

Following operation literally nothing happened. The stomach never emptied itself. The patient was kept under observation nearly three weeks more, vomiting daily in spite of gastric aspirations that frequently reached a liter a day. No fluid left the stomach either by the pylorus or the gastroenterostomy opening. Despite the use of drugs such as prostigmine and mecholyl, it was never possible to produce a peristaltic wave. Finally, a second operation was done and another enterostomy was performed a little lower down. For two weeks more nothing ever left the stomach and the patient finally developed minor pulmonary signs and faded slowly out of the picture.

CLINICAL DIAGNOSIS

Pyloric obstruction (? carcinoma or benign ulcer).

DR. BENEDICT'S DIAGNOSIS

Duodenal ulcer, with pyloric obstruction.

ANATOMICAL DIAGNOSES

Carcinoma of pylorus, infiltrating duodenum and mesentery.
Pyloric obstruction.
Gastric dilatation.
Operative wounds: anterior gastrojejunostomy, enteroenterostomies and jejunostomy.
Hemohydrothorax, left.
Massive collapse, left lung.
Healed apical tuberculosis, bilateral.
Arteriosclerosis, generalized, moderate.

PATHOLOGICAL DISCUSSION

DR. MALLORY: The post-mortem examination showed that there was a definite tumor in the region of the pylorus and the first part of the duodenum. This was clearly a carcinoma of the stomach because the mucosa of the stomach was involved directly within the pyloric ring. The pyloric muscle was diffusely infiltrated with signet-ring cells and was three times the normal thickness. The tumor had extended grossly for some 2 cm. into the duodenum, which is very unusual; there was considerable infiltration of the surrounding mesentery, and a few of the regional nodes showed microscopic but no gross metastases. There were no distant metastases from the tumor, the liver and lungs being free. The patient developed terminally a hemorrhagic pleuritis on one side and massive collapse of the left lung. There were no other findings of particular interest.

Dr. Rose's query is the essential question of this case. Why, in a six-week period, despite the use of drugs such as prostigmine and mecholyl, it was never possible to produce a peristaltic wave could not be explained anatomically.

DR. BENEDICT: How much of the mass was outside the stomach?

DR. MALLORY: At the time of autopsy about a third of the tumor lay in the mesentery, but at the time of the first operation no such mesenteric involvement was found.

DR. BREED: Was there any ulcer?

DR. MALLORY: No.

DR. SCHATZKI: Will you describe the gross appearance of the tumor? Was it elevated or infiltrative?

DR. MALLORY: It was entirely infiltrative, consisting merely of thickening of the wall of the stomach and first portion of the duodenum.

DR. SCHATZKI: And the mucosa over it?

DR. MALLORY: Microscopically it was carcinomatous, but it was not ulcerated and was not elevated at any point.

DR. BENEDICT: Did the cancer invade the stoma?

DR. MALLORY: No; that was 15 cm. away.

DR. BENEDICT: You cannot explain why nothing went through the stoma?

DR. MALLORY: No; he had a paralyzed stomach during all this period.

DR. BENEDICT: In this type of obstruction, I do not believe that an anterior gastroenterostomy works as well as a posterior gastroenterostomy.

DR. MALLORY: That was realized but apparently was necessary technically.

DR. MERRILL C. SOSMAN: The small funnel-shaped projection at the lower end of the stomach is probably the infiltrating part of the prepyloric lesion and not an ulcer or projecting tumor.

CASE 29192

PRESENTATION OF CASE

First admission. A forty-two-year-old chemical engineer entered the hospital because of sharp nonradiating pain in the left flank.

The patient had been in good health until three weeks prior to admission, when suddenly, two hours after a sandwich lunch, he experienced a sharp, sticking nonradiating pain in the left flank that lasted five hours and spontaneously cleared. One week later a similar attack occurred, lasted four hours, spontaneously cleared for sev-

eral hours and then recurred for approximately four hours. During this attack he felt slightly nauseated and vomited mucus and partially digested food without relief. There was no change in bowel habits, and no diarrhea, constipation or tarry, bloody or acholic stools.

The family and past histories were noncontributory.

Physical examination revealed a well-developed and well-nourished man who seemed comfortable. The heart and lungs were normal. No tenderness or rigidity of the abdomen was elicited, and no masses were felt. Several small, nontender hemorrhoids were felt just above the anal sphincter. The prostate was small.

The blood pressure was 128 systolic, 82 diastolic. The temperature, pulse and respirations were normal.

Examination of the blood revealed a hemoglobin of 16.4 gm. per 100 cc. and a white-cell count of 7200, with 82 per cent polymorphonuclears. A blood Hinton test was negative. The urine was negative. The stool was brown and guaiac negative. The nonprotein nitrogen was 20 mg. per 100 cc.

A Graham test was negative. There was a laminated area of calcification, about 1 cm. in diameter, in the upper posterior portion of the liver. An intravenous pyelogram was negative. A barium enema filled the colon readily. About 6 cm. proximal to the rectosigmoid junction there was an area of slight narrowing approximately 3.5 cm. in length, associated with gross irregularity of the mucosa with shelf-like margins.

On the tenth hospital day, under general anesthesia, a combined abdominoperineal resection of a carcinoma of the sigmoid was performed and a descending colostomy established in the left paraumbilical region. No tumor was found in the regional lymph nodes attached to the specimen. Very extensive adhesions were present throughout the peritoneal cavity. A number of small nodules, approximately 2 cm. in diameter, were felt but not visualized at the dome of the liver.

Three weeks after operation the patient's temperature began to spike each day between 102 and 103°F. and the pulse showed similar peaks, in spite of a course of sulfadiazine. Two and a half weeks later emetin hydrochloride was administered, and after five days the temperature and pulse became normal. Repeated examinations of the stools did not reveal *Entamoeba histolytica* or its cysts. The patient was discharged eight weeks after admission, apparently quite well.

Final admission (one year later). The patient was readmitted because of diarrhea and fatigue that began eight months after discharge from the hospital and became progressively worse.

The patient seemed pale and apathetic and complained of abdominal pain. The colostomy functioned well. The entire epigastrium was distended and tympanitic, and there was tenderness at and below the costal margin in the midclavicular line. Normal peristalsis was audible. No masses were felt. Rectal examination was not remarkable.

The temperature, pulse and respirations were normal.

The blood showed a hemoglobin of 11.6 gm. per 100 cc. and a white-cell count of 6700, with 74 per cent neutrophils. The urine was normal. A bromsulfalein test showed 40 per cent retention of the dye in the serum. The cephalin flocculation test was 0 at 24°C. and + at 48°C. The prothrombin time was 26 seconds (normal, 22 seconds).

A barium meal demonstrated a normal upper esophagus. The lower esophagus showed curling, but in addition, when the esophagus was relaxed, the folds appeared to be widened and tortuous. There was evidence of pressure from the enlarged liver and spleen. The duodenal cap showed similar pressure defects. The remainder of the duodenal loop appeared normal. Hourly films of the small bowel showed rapid passage of the barium. At the end of three hours the barium was in the lower ileum and scattered through the colon to the colostomy opening.

An operation was performed on the seventh hospital day.

Differential Diagnosis

Dr. Earle M. Chapman: May we see the x-ray films?

Dr. George W. Holmes: The obvious finding at the first admission is a large liver. The shadow is of homogeneous density. The diaphragm is displaced upward, and the shadow extends low in the abdomen. In the same region there is a shadow characteristic of a gallstone. On the left side I can see an area of density that is rather characteristic of a large spleen. The examination of the esophagus shows slight prominence of and changes in the mucosal folds, which I am not willing to say are varices, and I take it that whoever examined the patient felt the same way, because he drew no conclusion. I should say that they may be varices, but there is not enough evidence to make a diagnosis.

In the chest films the diaphragm is high on the right, confirming the large liver. The lateral view does not give any additional information.

The plates taken of the gall bladder, strangely enough, show what appears to be a perfectly nor-

mal organ, and the shadow that was thought to be a gallstone is not in the gall-bladder region at all. What it is, I do not know. I do not believe it is a stone in the hepatic duct. Of course that is a possibility, but it is too high.

The film of the stomach is normal. There is nothing in the small bowel. The film of the urinary tract clearly shows the kidney and the injected pelves; they are normal. In the ordinary film the colon does not show anything definite, but the spot films do show the characteristic picture of carcinoma.

To summarize, this patient has a large liver, a large spleen, a shadow in the region of the liver that looks like a gallstone but is not, changes in the esophagus that are insufficient to make a diagnosis of varices, and a definite carcinoma of the colon.

DR. CHAPMAN: The S. S. Van Dyne reconstruction here is a bit difficult. It seems clear that the man had carcinoma of the sigmoid to begin with, and the illness seems perfectly straightforward up to that point. The first warning was an abdominal cramp, and after adequate study they discovered the lesion, which was removed, following which the patient seemed well. Perhaps the clue in this case is the finding of this queer calcified area in the liver. Moreover, there were extensive adhesions throughout the general peritoneal cavity and a number of nodules approximately 2 cm. in diameter that were felt, but not visible, at the dome of the liver. Finally he ran a spiking temperature, which responded to emetin or perhaps, belatedly, to sulfadiazine. If we knew the answer to these various points we could perhaps explain the second illness, which I believe was not related to the carcinoma.

What could cause calcification of this kind? One of course always thinks of tuberculosis as leading to calcification in the course of healing, but tuberculosis of the liver is exceedingly rare. I believe that solitary tuberculomas do occur and they can calcify. One might suppose that some time earlier in life this man had had an infection in his peritoneal cavity that not only left him with adhesions but with nodules and calcification in the liver. The commonest thing I know of which might produce such results is tuberculosis. Other infectious diseases can occasionally heal with calcification but I cannot be specific and name the diseases.

One has to consider the possibility of amebic disease. The patient might have entered with a latent liver abscess that broke down, with subsequent spreading of the disease, but I am against that because the temperature, pulse and respirations were normal on the second admission. One thinks also of fungus or yeast infection, which may spread through the abdomen and heal with nodule formation.

What are the other possibilities? The first one is carcinoma, metastasizing to the liver and leading to a picture like cirrhosis, with a swollen liver, jaundice, ascites and diarrhea.

This man was forty-two years old and a chemical engineer. That may be a clue. Had he been exposed to some substance that was toxic to the liver? One thinks of carbon tetrachloride, benzene, arsenic and one of the heavy metals. We do not know whether he returned to work.

The presence of straight cirrhosis does not seem likely. The evidence for intrinsic liver damage is not great. It seems likely that the patient had a toxic rather than a cirrhotic liver. The liver, as well as the spleen, was enlarged. The evidence for varices is questionable, as is that for impaired liver function. The flocculation test was 0 at 24°C. and + at 48°C. The prothrombin time was only slightly elevated. His two complaints were diarrhea and fatigue. I should like to know if it is true that he did not have a fever during the second illness. I can hardly believe that, although we are led to believe so with the one statement that the temperature was normal.

DR. TRACY B. MALLORY: The temperature ranged from 97.5 to 100°F.

DR. CHAPMAN: By mouth or rectum?

DR. MALLORY: By mouth.

DR. CHAPMAN: So we cannot accept that statement in the record. The patient did have low-grade fever.

I am curious to know what operation was performed.

DR. MALLORY: It really was not an operation, merely the diagnostic procedure of peritoneoscopy.

DR. CHAPMAN: I should say that this man had a carcinoma of the colon, which was removed. The operation stirred up an old process and he recovered following treatment with emetin hydrochloride, but I do not understand why. There is no evidence for amebic disease. Yet he went on with low-grade fever, diarrhea and weakness and, when readmitted with a swollen abdomen, was obviously ill and going downhill. I cannot believe he had metastatic disease and must assume there was underlying liver disease, possibly a toxic hepatitis connected in some way with his occupation. Finally, some organism that might have caused infection throughout the peritoneal cavity.

DR. MALLORY: Does anyone want to vote in favor of all this being due to metastatic carcinoma? (No response.)

Clinical Diagnoses

Carcinoma of sigmoid.
Cirrhosis of liver?
Amebic hepatitis?

Dr. Chapman's Diagnoses

Carcinoma of sigmoid.
Calcified nodules, abdominal (? cause).
Toxic cirrhosis (? occupational).
Peritoneal infection (? cause).

Anatomical Diagnoses

Carcinoma of sigmoid, with metastases to retroperitoneal nodes and liver.
Operative wounds: resection of rectosigmoid and colostomy.
Perforation of bowel, traumatic.
Peritonitis, acute fibrinopurulent.
Chiari's disease (thrombophlebitis of hepatic veins).
Splenomegaly with fibrosis, moderate.
Probable tuberculoma of liver.
Arteriosclerosis, aortic, severe.

Pathological Discussion

Dr. Edward B. Benedict: At the first attempt at peritoneoscopy I noted a mass of adhesions and could not see anything. I then selected a location a little higher up and found the liver to be full of what appeared to be metastatic carcinoma; this was proved by biopsy.

Dr. Mallory: A decent interval of time after peritoneoscopy, when this man was irrigating the old colostomy, he succeeded in perforating the bowel. He very promptly went into shock and died.

At the time of autopsy we found, as Dr. Benedict had seen, the liver riddled with metastases. These unquestionably came from the original tumor in the sigmoid. However, that did not seem to be the whole story. There was, throughout the second entry, suggestive evidence of portal obstruction. Extremely rarely metastatic carcinoma of the liver does cause portal obstruction. Besides the carcinoma we found that the liver was cirrhotic, a very peculiar type of cirrhosis, which was most marked in the centers of the lobules rather than peripherally, and in a great many of the hepatic veins there was evidence of an old organized thrombophlebitis. I believe it is fair to say that this man had what is known as Chiari's disease,* which is primary thrombophlebitis of the hepatic vein. This would secondarily result in obstruction to the portal circulation similar to that found with cirrhosis of the liver.

The spleen was moderately enlarged, weighing 350 gm. The spleen showed a degree of fibrosis such as one would expect with obstruction of the portal circulation. The folds of the esophageal mucosa were slightly dilated, but no frank varices could be found. The immediate mechanism of death was generalized peritonitis following perforation of the bowel.

Dr. Holmes: Did you find the calcified nodule?

Dr. Mallory: Yes; we made sections of it and are just as wise as we were before. It was a mass of calcium surrounded by fibrous tissue. It lay deep within the liver substance. It could be a healed tubercle; it could be a remnant of a hemangioma, which not infrequently calcifies. There is nothing, however, that gives us any lead to the cause.

*Chiari, H. Erfahrungen über Infarctbildungen in der Leber des Menschen. *Ztschr. f. Heilk.* 19:475-512. 1898.

The New England
Journal of Medicine
Formerly
The Boston Medical and Surgical Journal
Established in 1828

Owned by the Massachusetts Medical Society and Published under the Jurisdiction of the Committee on Publications

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Subscription Terms: $6.00 per year in advance, postage paid, for the United States (medical students, $3.50 per year); Canada, $7.04 per year, Boston funds; $8.52 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Friday.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston, Massachusetts.

SOCIETY HEADQUARTERS

For several years the Massachusetts Medical Society has discussed the advisability of purchasing a building that, by location and equipment, would constitute a headquarters house. Such a building in a suitable location could undoubtedly be found, but it would require many structural changes, suitable furnishings and a staff of attendants. After the quarters had been created, would the building be used by fellows throughout the State in sufficient numbers to make the project worth while? It is the opinion of the members of the Committee on Society Headquarters and of numerous fellows in and out of Boston that the use of such a house would never justify its high annual cost. Furthermore, no building would ever meet the full requirements of the Society, especially at the time of the annual meeting.

A considerable number of members believe that the present quarters in the Boston Medical Library give the Society adequate space for the activities of the officers, various committees and the *Journal*, and there is the prospect of additional space in the near future, which will permit the establishment of a medical information center, where visiting physicians may obtain the schedules of meetings and clinics in Greater Boston. The advantages afforded by the books and periodicals of the Boston Medical Library to the staff of the *Journal* are incalculable. Furthermore, the Library can be made increasingly useful to all fellows of the Society, and plans are being formulated with this end in view. In past years the Society has made continually increasing demands on the Library for space, light, heat and service; however, for all these added advantages the Library has never asked an additional penny.

In view of all these facts and opinions, the two recommendations to be presented to the Council at its annual meeting by the Executive Committee — namely, that the Society acquire additional space in the Boston Medical Library and that a greater sum of money be allowed for maintenance — deserve the unqualified support of the members of the Council.

VIRILE NEW YORKERS

The *New York State Journal of Medicine*,* taking note of an editorial appearing in the March 4 issue of the *Journal*, "Ancient of Days," republishes it in toto, with the following pithy comment:

> The begging bowl at sixty may appeal to the senescent New Englander; but, with apologies, we will trail along with Sir William Beveridge. And what have the high Himalayas got, except a little more height, that we lack in the Empire State? We will do our contemplating and service to mankind right here. Our begging bowls were contributed to the scrap drive long ago, and the records of our District Branch meetings showed that attendance in 1942 in the age group 64 to 72 was 15.66 per cent of the total; in the 75 to 84 group, 2.53 per cent; and in the 85

*Editorial. Medicine in the news. *New York State J. Med.* 43:826, 1943.

to 94 group, 0.17 per cent. We were "dusted off and shaken clear of moth crystals" 'way back in 1942. Contemplation, say you? Retirement? Out for the duration! Come on, Bunker Hill, we have a job to do!

We must apologize for the hint of decay that we have apparently expressed. Better, however, we still maintain, to ripen with the advancing years than to remain forever crystallized in adolescence.

MEDICAL EPONYM

Vaquez's Disease

Polycythemia vera was described by H. Vaquez (1860–1936) in an article entitled "Sur une forme spéciale de cyanose s'accompagnant d'hyperglobulie excessive et persistante [A Variety of Cyanosis Accompanying Persistent and Excessive Increase in Blood Cells]," published in *Le Bulletin Médical* 6: 849, 1892. A portion of the translation follows:

> It has seemed of interest to call attention at the present time to certain cases of persistent polycythemia, associated with or perhaps causing chronic cyanosis and producing a group of symptoms which apparently are faithfully reproduced in various different observations that have dealt with this subject. . . . The examination of the blood [in his case] showed the surprising figure of 8,900,000 red blood cells. . . . We were also struck by another phenomenon: the marked increase in the size of the liver, 20 cm. [below the ribs] in the nipple line.

R. W. B.

MASSACHUSETTS MEDICAL SOCIETY

COMMITTEE ON ARRANGEMENTS

Applications for tickets to the annual luncheon and dinner of the Society and to the luncheons of the various sections are coming in slowly. Although it is realized that it is hard for physicians to plan so far in advance, under food-rationing conditions as they exist today the hotel must be notified concerning attendance at these functions well in advance of the meeting.

Those who plan to attend any of the luncheons or the dinner should forward their applications for tickets, with enclosed checks, to 8 Fenway, Boston, at once. The price of all luncheons is $1.75, and of the annual dinner $2.75.

Gordon M. Morrison, *Chairman*

COMMITTEE ON LEGISLATION

The Committee on Legislation of the Massachusetts Medical Society wishes to publish the following bulletin of committee work accomplished by the Great and General Court of Massachusetts on bills of interest to the Society. This summary is the most complete that is possible for publication before the Council meeting, in order to have it in the hands of the members prior to the meeting.

Committee on Public Health

H. 79. Bill (accompanying H. Bill No. 78, recommendations of the Board of Registration in Medicine) relative to providing for the inspection of colleges, universities, and medical schools approved for the purposes of medical education and for the withdrawal of such approval in certain cases; heard on Feb. 2; no leg. necessary, Mar. 30.

H. 80. Bill (accompanying H. Bill No. 78, recommendations of the Board of Registration in Medicine) relative to examinations for registration as qualified physicians; heard on Feb. 2; no leg. necessary, Mar. 30.

H. 81. Bill (accompanying H. Bill No. 78, recommendations of the Board of Registration in Medicine) relative to the scope of examinations for registration as qualified physicians; heard on Feb. 2; no leg. necessary, Mar. 30.

H. 84. Bill (accompanying H. Bill No. 83, recommendations of the Department of Public Health) relative to further regulating the filing of notices of intention of marriage; heard on Feb. 4.

H. 89. Bill (accompanying H. Bill No. 83, recommendations of the Department of Public Health) relative to certain clinics conducted by licensed hospitals; heard on Jan. 28; ord. 3d, Feb. 1; House 1284 substituted Feb. 2.

H. 347. Petition of Charles A. Kelley for the repeal of provision of law requiring pre-marital serological tests; heard on Mar. 11; S. Bill printed as H. Bill 347, Apr. 8; rejected on Apr. 12.

H. 507. Petition of Robert W. Lawson for legislation to control the advertising and sale of certain articles and preparations commonly purchased for use in preventing conception; heard on Mar. 11; leave to withdraw on Mar. 30.

H. 509. Petition of Henry M. Landesman for legislation to provide a plan to reduce the annual incidence of contagious and infectious diseases of children; heard on Mar. 25; referred to next General Court on Apr. 7.

H. 512. Petition of the Massachusetts Mothers' Health Council for legislation to protect women employed in mercantile and manufacturing establishments before and after childbirth; heard on Mar. 11; also on Apr. 7.

H. 727. Petition of the Physicians Committee for the Defense of Medical Rights that registered physicians be authorized to furnish contraceptives to married women when in their opinion it is necessary for the protection of life or health; heard on Mar. 18; leave to withdraw on Apr. 8.

H. 863. Petition of John S. Codman and others that vaccination be made voluntary and that certificates of vaccination or non-vaccination be no longer required as a prerequisite to the attendance of adults or children in the public schools; heard on Apr. 1; leave to withdraw on Apr. 8.

H. 868. Petition of Annie D. Brown for legislation to regulate the practice of physicians and surgeons in

certain cases; heard on Feb. 16; leave to withdraw on Feb. 18.

H. 869. Petition of Annie D. Brown that qualified physicians be required to take periodical blood tests and to display certificates of the results thereof in their offices; heard on Feb. 16; leave to withdraw on Feb. 18.

H. 870. Petition of Annie D. Brown to regulate further the filing of notices of intention of marriage, the delivery of certificates of such intention and the return of unused certificates; heard on Mar. 25.

H. 871. Petition of Morris Kritzman for the appointment of a special commission (including members of the General Court) to make a survey and study of health needs of certain needy persons within the Commonwealth, heard on Feb. 11; leave to withdraw on Feb. 11.

H. 1012. Petition of William H. McCarthy (director of the Division of the Blind) for amendment of the law relative to recording the treatment of infants at birth; heard on Feb. 11.

H. 1013. Petition of William H. McCarthy (director of the Division of the Blind) for amendment of the law relative to reports by physicians of treatment of certain wounds; heard on Feb. 11.

H. 1014. Petition of G. Lynde Gately (health commissioner of the City of Boston) relative to granting of permits by boards of health to persons engaged in selling, processing, storing and distributing food; heard on Feb. 16; leave to withdraw on Feb. 17.

H. 1198. Petition of Edwin W. Hadley for legislation to regulate certain experiments with animals; heard on Mar. 25; referred to next General Court Apr. 12.

H. 1200. Petition of James A. O'Brien that boards of health be required to make monthly inspections of employees of persons distributing food or beverages within their cities or towns; heard on Feb. 16; leave to withdraw on Feb. 17.

H. 1387. Report of the Commission on Administration and Finance (under authority of Section 7 of Chapter 7 of the General Laws) recommending certain subjects of legislation relative to promoting economy and efficiency and avoiding useless labor and expense within the Commonwealth. So much as relates to permitting the Department of Public Health to establish and maintain cancer clinics; heard on Apr. 8; H. Bill printed in H. 1387, Apr. 12; referred to House W. and M.

COMMITTEE ON INSURANCE

S. 45. Petition of the Massachusetts Life Underwriters Association, by Merle Summers, for legislation to authorize the issuance of policies of life or endowment insurance without a medical examination and to require the consent of the insured thereto in certain cases; heard on Feb. 7; also on Mar. 29.

S. 45. Bill to authorize the issue of policies of life or endowment insurance without a medical examination and to require the consent of the insured thereto in certain cases. (Insurance.) In Senate, Mar. 29; ord. 3d, Mar. 30; eng. Mar. 31; rec'd in House, Apr. 1; ord. 3d, Apr. 5; amended and eng. Apr. 6; reconsideration refused, Apr. 7; rec'd in Senate. Senate concurs in amendment, Apr. 8; to Gov. Apr. 13, signed, Apr. 16. Chap. 186.

LEGAL AFFAIRS COMMITTEE

H. 1141. Petition of Ernest W. Dullea and others for legislation to provide a penalty for theft of domestic animals or birds; heard on Mar. 3; also on Mar. 17; ord. 3d, Mar. 18; H. Bill 1470 substituted, Mar. 30.

H. 1470. Bill providing a penalty for the unauthorized taking of cats, dogs or birds for certain purposes. Substituted in House, for House 1141, and eng. Mar. 30; rec'd in Senate, Apr. 1; ord. 3d, Apr. 5; amended, eng. April 7; rec'd in House for concurrence in amendment; House concurred, Apr. 8; to Gov. Apr. 13; recalled to Senate, Apr. 20.

A further report, including all the remaining bills to be completed by the legislature, will be published as soon as possible after the closing session of the Great and General Court, the date of which closure will probably be on or about June 1, 1943.

BRAINARD F. CONLEY, *Chairman*

DEATHS

ASH — JOHN H. ASH, M.D., of Quincy, died February 15. He was in his seventy-fourth year.

Dr. Ash received his degree from Harvard Medical School in 1895. He had been a medical examiner for the Metropolitan Life Insurance Company until 1940. He was a member of the Massachusetts Medical Society and the American Medical Association.

A son and six daughters survive him.

DEEMS — OREN M. DEEMS, M.D., of Springfield, died April 17. He was in his sixty-fourth year.

Dr. Deems graduated from the University of Pennsylvania School of Medicine in 1904 and had practiced his specialty — eye, ear, nose and throat in Springfield for many years. He was a member of the Massachusetts Medical Society and the American Medical Association.

DRESSLER — MORRIS L. DRESSLER, M.D., formerly of Cambridge, died May 6 at Fort Dix, New Jersey, where he was serving with the Army Medical Corps. He was in his forty-fifth year.

Major Dressler received his degree from Tufts College Medical School in 1921. He served as Cambridge city physician for ten years and was a trustee of Cambridge City Hospital. He was a member of the Massachusetts Medical Society and the American Medical Association.

His widow and two sons survive him.

GOLDMAN — HARRY GOLDMAN, M.D., of Roxbury, died April 22. He was in his forty-eighth year.

Dr. Goldman received his degree from Tufts College Medical School in 1918 and held a Master of Public Health degree from Harvard. He was a member of the Massachusetts Medical Society and the American Medical Association.

His widow, three children and three brothers survive him.

JUDKINS — FRANK L. JUDKINS, M.D., of Lynn, died April 21. He was in his ninety-first year.

Dr. Judkins received his degree from Bowdoin Medical School in 1879 and later studied at Harvard and Dartmouth. A founder of Union Hospital, Lynn, he was the

first president and served for many years as chief surgeon. He was a member of the Massachusetts Medical Society and the American Medical Association.

His widow, a son and two daughters survive him.

LUTHER — Eliot H. Luther, M.D., of Westfield, died May 2. He was in his forty-eighth year.

Dr. Luther received his degree from Harvard Medical School in 1921. He had been assistant superintendent of Westfield State Sanatorium since 1936 and a member of its medical staff since 1932. He was a member of the Massachusetts Medical Society and the American Medical Association.

PRIEST — Herbert B. Priest, M.D., of Littleton, died March 12. He was in his sixty-ninth year.

Dr. Priest received his degree from the Harvard Medical School in 1901. He was a member of the examining physicians' board of the induction center at Fort Devens and was also a member of the staff of the Community Memorial Hospital in Littleton. He was a member of the Massachusetts Medical Society and the American Medical Association.

His widow, a son and four brothers survive him.

STONE — Thomas N. Stone, M.D., of Haverhill, died April 21. He was in his sixty-fourth year.

Dr. Stone received his degree from Harvard Medical School in 1903. He was a member of the Massachusetts Medical Society and of the American Medical Association, and a past president of the Pentucket Medical Association.

WAR ACTIVITIES

CIVILIAN DEFENSE

Gas Cleansing Stations

The following directive (Operations Letter No. 124) has recently been released by the Office of Civilian Defense, Washington, D. C.:

(1) In order to avoid confusion in use of the term "decontamination," it is recommended that the term be reserved for areas and objects and that hereafter the removal of vesicant liquids from persons be termed "gas cleansing." The facilities established for this purpose will be called "gas cleansing stations."

(2) The primary purpose of these facilities is the protection of hospitals and casualty stations and their staffs and patients from contamination by injured persons who have been exposed to vesicant agents. Contaminated persons, including Citizens Defense Corps members, who are not disabled, are expected to cleanse themselves in nearby private homes or other local facilities.

(3) In large cities in the target areas, it is recommended that cleansing stations be provided at or adjacent to hospitals in the ratio of one station for 50,000 inhabitants. A station should be provided at every hospital that has 150 beds or more, and if this does not bring the number up to the recommended ratio, additional stations should be established at smaller hospitals or casualty stations. At least one station should be established in every city of 25,000 or more in the target areas.

(4) Under present conditions of scarcity of materials and manpower, construction of new facilities is generally not justified. Cleansing stations should be established in connection with casualty receiving hospitals by conversion of sufficient existing facilities to cleanse persons who are both injured and contaminated.

The necessity of using available establishments and materials and avoiding requests for priorities for construction of new facilities cannot be emphasized too greatly. Materials such as pipe, fittings and shower heads must be obtained in the community from available stocks and from suppliers of used and reclaimed equipment.

(5) The chief of Emergency Medical Service and the senior gas officer should assist hospital superintendents in planning their cleansing facilities. In hospitals the facilities which should prove suitable for conversion to cleansing stations, roughly in the order of preference, are hydrotherapy rooms, nurses' or interns' locker and shower rooms, part of the outpatient department and garages, or other separate structures. In the event that these are not available, facilities must be arranged in nearby schools, gymnasiums, swimming pools, shower rooms, clubhouses, and community centers.

Plans should be fully made for immediate establishment and equipment of necessary gas cleansing stations in event of need. It is desirable that each large community establish without delay at least one gas cleansing station for training purposes.

(6) Cleansing stations should be equipped to take care of one third to one half of the hourly casualty receiving capacity of the hospital to be served. The professional staff will consist of mobile medical teams assigned when the station is activated, supplemented by an additional staff of attendants to assist in undressing the injured, moving stretchers, caring for clothing and valuables, maintaining supplies and dressing wounds.

(7) The local chief of Emergency Medical Service is responsible for the development of these stations. The senior gas officer of the community should act as his consultant in helping to establish these facilities. Industrial plants working on war contracts that wish to provide cleansing facilities for employees should be given aid and advice by the chief of Emergency Medical Service and the senior gas officer.

CORRESPONDENCE

MEDICAL SUPPLIES FOR RUSSIA

To the Editor: I should like to use the columns of your valuable journal to extend the thanks of the Massachusetts Committee of Russian War Relief, Incorporated, to the physicians of Greater Boston who have contributed surgical and dental instruments and drugs for transmission to the Russian people. The amount of this contribution has been very large, and literally hundreds of physicians have contributed either instruments or very valuable time for this worthy cause.

Though it is possible that the supply of instruments has now been exhausted, we should be very grateful for any further such contributions. I believe that many physicians will continue to receive medical samples of drugs which would be valuable. We should be most grateful if they would send these to our office at 128 Newbury Street, Boston.

Let me close by again expressing our deep appreciation of the energy and generosity of the physicians of Greater Boston.

Hugh Cabot, M.D., *Chairman*
Massachusetts Committee of Russian
War Relief, Incorporated
128 Newbury Street
Boston

BOOK REVIEWS

The Eye Manifestations of Internal Diseases. By I. S. Tassman, M.D. 8°, cloth, 542 pp., with 201 illustrations. St. Louis: The C. V. Mosby Company, 1942. $9.50.

The first half of the book is given to a discussion of the anatomy of the eye, methods of examination of the visual mechanism, and congenital and hereditary ocular anomalies. The second half of the book in page count, but not so designated by the author, treats of the eye manifestations of internal diseases. The text is attractively printed, and its subject matter is enhanced by a wealth of well-chosen, instructive and well-reproduced illustrations, of which nineteen are in color.

In the pages assigned to medical ophthalmology, the author devotes 136 pages to body diseases caused by invading organisms, viruses and parasites, and 133 pages to intoxications, cardiovascular disease, endocrine disorders, avitaminoses, disease and tumors of the central nervous system, skin diseases and disorders of the bones of the skull. In the interest of order, the author gives a brief but significant résumé of each disease, and then recites the ocular manifestations and their treatment. . He quotes freely from authorities who have contributed advances during the past decade.

Such an excellent work is a useful "tool" not only for ophthalmologists in teaching and practice, but also for reference by all who practice medicine, make diagnoses and follow the clinical course of disease. In any case, the ophthalmologists do not require, and others cannot quickly assimilate book instruction in the anatomy and methods of examination of the eye. In the opinion of the reviewer, the author might well have cited references to the standard texts that cover these aspects, and then concentrated his whole effort on the wealth of his material in medical ophthalmology, possibly adding more statistical data relating to the incidence of ocular complications, and possibly one chapter dealing with each important eye complication (for example, keratitis, iritis and retinitis) in terms of all bodily diseases that accompany it.

Motivation and Visual Factors. By Irving E. Bender, A.M., Ph.D., Henry A. Imus, A.M., John W. M. Rothney, Ed.M., Ed.D., Camilla Kemple and Mary R. England. 8°, cloth, 369 pp. Hanover, New Hampshire: Dartmouth College Publications, 1942. $4.00.

One quarter of the Class of 1940 at Dartmouth College, during their four years of college life, became willing subjects to detailed eye studies by the staff of the Eye Institute, to periodic medical and neurologic examinations by the Health Service and to autobiographies dealing with their familial socioeconomic background, and during the fourth college year one sixth of these students submitted to repeated interviews by the authors of this monograph. To probe the relation between motivation and visual abnormalities, the authors constructed 20 complete case histories, which are reported in detail in the fifth chapter of the monograph, and which reflect for each subject the four-year eye findings, the adaptation to the college community, the scholastic achievement, the observed personality and behavior of the subject, and his intelligence and performance as determined by standard tests.

The interest of these studies to psychologists will center around the psychologic approach by interview and questionnaire, the methods selected for the subjective and objective appraisal of each patient, and the validity of analysis and interpretation by the authors of the 20 psychoportraits, each of which seeks to portray fully the manner in which the individual copes with and adjusts himself to his environment. For the thoroughness of methods and the frankness of interpretation of the findings one can have only admiration. But in view of the conflicts and frustrations that beset everyone daily from birth onward, and with respect to the conditioning that one who survives must acquire in thousands of contacts with a hostile world, one must rate the question of validity of interpretation based on the span of a few years, the isolated college years.

The interest of this monograph to physicians, and especially to ophthalmologists, will focus on the six general conclusions which the authors voice in the sixth chapter. In substance, admitting that the visual abnormalities demonstrated were mild, the authors deny any significant effect on motivation by the corrected or uncorrected visual abnormalities (oculomotor anomalies, refractive errors, aniseikonia and so forth); they deny demonstrable relation between visual efficiency and academic grades and tested mental ability; and they deny that provision in college of indicated optical corrections yielded improvement in the quality of scholastic achievement. There is speculation about the effect that might be precipitated deliberately by an artificial aniseikonia in a patient previously normal, and therefore in one who has had no occasion or opportunity to condition himself to such a problem.

As in all discerning research, the work at Dartmouth has opened up new problems, and the high quality of investigation there promises answers to them.

Treatment in General Practice. By Harry Beckman, M.D. Fourth edition, thoroughly revised. 4°, cloth, 1015 pp., with 20 tables, 1 chart and 5 illustrations. Philadelphia: W. B. Saunders Company, 1942. $10.00.

This is the fourth edition of a book that has been favorably received by the profession since its original publication.

The author has justifiably deplored the situation prevalent in medical schools limiting therapeutics to a course in pharmacology and then ignoring formal teaching in the treatment of the sick patient. Without belying the importance of diagnosis and the search for specific remedies, the relief sought by the patient can be abetted in countless ways. The book amply satisfies these needs and can be utilized alongside a text of medicine. For the man in practice it offers a source of quick reference easily appreciated.

The author has refrained from delving into questions of specialized treatment or technic. The integration of clinical medicine and physiology has borne fruitful results in a rational approach to therapy. One omission worth noting is a discussion of the treatment of intestinal obstruction, which in its presurgical phases, involving the restoration of the chemical equilibrium of the body, has been of life-saving value.

One cannot help remarking on the smooth style of the writing itself.

(Notices on page xi)